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Original research article

Moral distress amongst intensive care unit professions in the UK: A mixed methods study

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Short title:

Moral distress in UK ICUs

Abstract

Objective

To assess the experience of moral distress amongst intensive care unit (ICU) professionals in the UK.

Design

Mixed methods: validated quantitative measure of moral distress followed by purposive sample of responders who underwent semi-structured interviews.

Setting

Four ICUs of varying size and speciality facilities.

Participants

Healthcare professionals working in ICU.

Results

227 questionnaires were returned and 15 interviews performed. Moral distress occurred across all ICUs and professional demographics. It was most commonly related to providing care perceived as futile or against the patient's wishes/interests, followed by resource constraints compromising care. Moral distress score was independently influenced by profession (p=0.02) (nurses 117.0 vs doctors 78.0). A lack of agency was central to moral distress and its negative experience could lead to withdrawal from engaging with patients/families. One-third indicated their intention to leave their current post due to moral distress and this was greater amongst nurses than doctors (37.0% vs 15.0%). Moral distress was independently associated with an intention to leave their current post (p<0.0001) and a previous post (p=0.001). Participants described a range of individualised coping strategies tailored to the situations faced. The most common and highly valued strategies were informal and relied on working within a supportive environment along with a close-knit team, although participants acknowledged there was a role for structured and formalised intervention.

Conclusions

Moral distress is widespread amongst UK ICU professionals and can have an important negative impact on patient care, professional wellbeing, and staff retention, a particularly concerning finding as this study was performed prior to the COVID-19 pandemic. Moral distress due to resource-related issues is more severe than comparable studies in North America. Interventions to support professionals should recognise the individualistic nature of coping with moral distress. The value of

close-knit teams and supportive environments has implications for how intensive care services are organised.

Strengths and limitations of this study

- Largest study of moral distress in the UK ICUs to date and the first multi-centre study including units of varying size and sub-specialty capability.
- Only UK study to date use a mixed methods technique with assessment across multiple ICU professions.
- This study has explored how ICU professionals cope with moral distress, highlighting the value of individualised informal approaches, close-knit teams and supportive environments. This may inform how ICU professionals are supported and has potential implications for how intensive care services are organised.
- The study is a risk of selection bias and may not capture those who have left the profession due to moral distress or those with low levels of moral distress that do not appreciate the study's value.
- This study represents a snapshot of moral distress which may be influenced by current clinical case-mix within the ICU or how the participant is feeling at that time. How moral distress changes over time remains unexplored.

Introduction

The COVID-19 pandemic has highlighted the psychological challenges faced by intensive care professionals around the world, including moral distress.(1-4) A survey conducted by the British Medical Association found that 78.4% of doctors experienced moral distress during the pandemic.(5) The importance of staff wellbeing and combatting staff burnout was recognised prior to the pandemic and is a priority for healthcare services worldwide, including the NHS.(6-8) A key contributor to burnout is moral distress.(9-13) Moral distress is a constellation of emotional and psychological features that occur when a professional identifies an ethically correct course of action, but is prevented from following this course.(14-16) It can also occur in situations where there is uncertainty or conflict regarding the ethically correct action.(17-19) It can be deeply damaging to the individual and is associated with a tendency to leave the profession, with a consequent negative impact on patient care.(9, 20)

The intensive care unit (ICU) is a place where patients with life-threatening conditions may be treated with a variety of invasive and burdensome interventions.(21) Highly significant, complex, and difficult decisions are made on a regular basis.(22). This environment is highly susceptible to moral distress and hence moral distress amongst ICU professions is of concern.(14, 18, 23, 24)

Moral distress was first identified in ICU nurses in North America and has been most frequently studied in this population.(14, 18, 23-25) Similar causes of moral distress have also been found amongst other ICU professionals, including physicians, respiratory therapists, and healthcare students.(20, 26-30) Despite concerns over ICU staff wellbeing, burnout and moral distress in the NHS, moral distress remains poorly studied in the UK.(19, 31, 32)

This study was performed prior to the COVID-19 pandemic and its primary aim was to assess the experience of moral distress amongst ICU professionals in the UK. Secondary aims were to a) identify the most common causes of moral distress; b) determine the relationship between demographic and professional characteristics and moral distress; c) examine the relationship between moral distress and intention to leave the profession, and d) identify potential interventions to mitigate moral distress.

Methods

The NHS Health Research Authority provided approvals for the study (IRAS:238379) and the research and development (R&D) department at University Hospitals Coventry and Warwickshire NHS Trust acted as study sponsor. The study was approved locally by each site's R&D department.

Participants were recruited from four adult ICUs. Sites A & B are large tertiary care hospitals with major trauma and complex multi-specialty surgical facilities and sites C & D are smaller district general hospitals with fewer specialist services. Sites C and D are part of the same organisational Trust so some staff work across both sites. Bed capacities of sites range from 12 to 80 beds. All full- and part-time healthcare professionals (HCP) working in the ICU were eligible. All grades and clinical professions were included, but students of any profession were excluded.

A paper questionnaire using the validated Measure of Moral Distress for Healthcare Professionals (MMD-HP (Supplementary File 1)) was distributed between February 2019 and February 2020.(33) The MMD-HP is a 27-item questionnaire that utilises a 0-4 point Likert scale to assess the frequency with which situations arise and the intensity of the moral distress caused.(25, 33) These are summed to produce overall frequency and intensity scores. Individual item frequency and intensity scores are multiplied together to produce a composite item score and these summed to generate an overall moral distress score. A free text section allows participants to describe additional scenarios not included in the MMD-HP inventory. The MMD-HP also includes two related questions concerning intention to leave the profession now or in the past due to moral distress.(33) Participant demographics were collected including profession, grade, age, gender, and years of ICU working experience.

Descriptive statistics were used to summarise demographics and moral distress scores. Individual item scores were ranked for comparison. Moral distress scores were non-normally distributed, as found in previous studies,(20, 31) and hence are presented as medians with IQRs and non-parametric statistical tests were used (Wilcoxon signed rank, Kruskal-Wallis). A sample size requirement calculation was not performed as there was inadequate UK data using the MMD-HP. Multiple linear regression was used to investigate the relationship between age and ICU experience and moral distress scores. Multiple logistic regression models were fitted to determine the association between moral distress scores and tendency to leave the profession. Covariates were pre-specified demographic and professional variables, with binary classification used for profession (nurse vs other) and hospital type (tertiary care vs district general). Discrimination of logistic regression models was assessed using area under the receiver operator curve (ROC AUC). For tendency to leave a previous position, an ordinal logistic regression was used in accordance with the ordinal dependent variable. Statistical analyses were

performed using R version 3.6.1 (R Foundation for Statistical Computing) with the code for analyses available on request.

Questionnaire respondents willing to take part in an interview included their contact details on the returned questionnaire and from those responders, potential interview participants were purposively sampled for hospital, profession, grade, and overall moral distress score. Written informed consent was obtained prior to interview. Interviews were conducted face to face between July 2019 and February 2020 and explored participants experience of moral distress, the situations that cause it, strategies they use to cope with it; and their views on possible interventions to alleviate moral distress. Interviews were audio-recorded and transcribed verbatim. Transcripts were uploaded to NViVo software and analysed using thematic analysis(34). All transcripts were coded by AB with 30% independently coded by AMS. Codes and emerging themes were discussed at regular analysis meetings.

Patient and Public Involvement

The study received contributions from the patient and public representatives from the University Hospitals Birmingham Clinical Research Ambassador Group. The members supported the proposed study and the saw potential for the work to benefit staff wellbeing and patient care. The group contributed to the study design, development of study documentation, including the protocol and participant information sheet, and the dissemination plan.

Results

Two hundred and twenty-seven questionnaires were returned from a total of 772 questionnaires distributed across all sites, giving an overall response rate of 29.4% (site A 28.3%, site B 24.0%, sites C & D 34.6%). Participant demographics are described in Table 1. Forty-one of the 227 participants completing the paper questionnaire indicated a willingness to take part in an interview, twenty-one were contacted with an invitation and further information about the interview study and 15 agreed to be interviewed. Interview participant demographics are summarised in Supplementary Table 1.

Table 1 Participant demographics

Characteristic	**N=227**
Mean age ±SD – years	38.1±10.3
Gender – no. (%)	
Female	165 (72.7%)
Male	52 (23.0%)
Not answered	10 (4.4%)
Profession – no. (%)	
Nurse	145 (63.9%)
Doctor	40 (17.6%)
Physiotherapist	9 (4.0%)
Advanced Critical Care Practitioner	8 (3.5%)
Pharmacist	2 (0.9%)
Not answered	23 (10.1%)
Mean ICU experience ±SD – years	10.1±9.2

Moral distress scenarios

Fourteen questionnaires were excluded due to missing responses preventing calculation of the moral distress score. Items are ranked by compositive score for nurses and doctors in Supplementary Table 2. The most highly scored items by both nurses and doctors related to delivering aggressive treatment that was perceived as futile or not in the patient's best interests. Other highly ranked items related to lack of resources, caring for more patients than is considered safe, excessive documentation, lack of administrative support, and abusive patients/family members compromising care. Nurses generally rated moral distress frequency and intensity more highly than doctors. Only four of the 27 items had a greater composite score for doctors over nurses and there was no commonality in the root causes of these scenarios.

Moral distress score associations

Total composite moral distress scores were positively skewed with a median score of 108 (IQR 78.2, range 0 to 288). The relationship between overall moral distress score and demographic characteristics are summarised in Figure 1. Moral distress was greater in females than males (111.5 (IQR 75.5) vs 94.0 (IQR 69.3), W=4755.5, p=0.043) and was significantly influenced by profession (H=11.89, p=0.018) with nurses reporting greater moral distress than doctors (117.0 (IQR 65.5) vs 78.0 (IQR 73.0)). There were differences in the distribution of gender across professions (Nurse: 83.7% female; Doctor: 40.0% female). Differences in moral distress between nurses and doctors persisted after statistical adjustment for differences in gender across professions (p=0.020). There was no relationship between overall moral distress score and participant age and ICU experience. This was confirmed with multiple linear regression where an interaction effects model of age and ICU experience against overall moral distress could only explain less than 1% of the variation in moral distress (adjusted R^2 0.0089). Median moral distress scores were higher in larger tertiary care hospitals than district general hospitals, however this did not reach statistical significance (114.5 (IQR 91.8) vs 98.0 (IQR 69.9), W=5012.5 p=0.23).

Intention to leave the profession

Seventy-one (33.3%) participants indicated their intention to leave their current post due to moral distress. Twenty-eight (13.1%) participants reported they had left a previous post due to moral distress and 101 (47.4%) reported they had considered leaving a previous post due to moral distress but did not leave. Overall moral distress was significantly greater in those intending to leave their current post (135.5 (IQR 84.5) vs 88.9 (IQR 65.3), W=2771.5 p<0.0001) and this difference was confirmed in both univariate and multiple logistic regression analyses. Logistic regression model variable ORs are summarised in Table 2. Multiple logistic regression included profession, gender, hospital type, age and

ICU experience as covariates and had good discrimination (ROC AUC 0.722) and ability to predict intention to leave (Supplementary Figure 1). Adjusted odds ratio for moral distress score against intention to leave was 1.011 (95% CI 1.005-1.017, p<0.001).

A greater proportion of nurses were considering leaving their current post due to moral distress than doctors (37.0% vs 15.0%). Nurses had a significantly greater odds of reporting an intention to leave the profession in both unadjusted (OR 3.013, 95% CI 1.442-6.810, p<0.01) and adjusted analyses (adjOR 3.023, 95% CI 1.243-8.014, p=0.019). There was no significant association between gender and intention to leave the profession in either unadjusted or adjusted models.

Moral distress score was significantly associated with the ordinal outcome of leaving a previous post in unadjusted and adjusted analyses (OR 1.010, 95% CI 1.006-1.015, p<0.0001; adjOR 1.009, 95% CI 1.004-1.014, p=0.001). Female gender and nurse profession were not significantly associated with leaving a previous post in adjusted analyses. Ordinal logistic regression model variable ORs are summarised in Supplementary Table 3.

Table 2 Logistic regression model variables and association with intention to leave current post in univariable and multiple analyses. Italics and * indicate statistically significant association. (OR=Odds Ratio, CI=Confidence Interval)

Variable	**Univariable OR (95% CI)**	***p*-value**	**Multivariable OR (95% CI)**	***p*-value**
Age (per year)	0.995 (0.966 – 1.024)	0.739	0.982 (0.929 – 1.036)	0.516
ICU experience (per year)	1.005 (0.973 – 1.038)	0.762	1.009 (0.929 – 1.072)	0.781
Gender				
Male	Ref	Ref	Ref	Ref
Female	1.289 (0.645 – 2.679)	0.482	0.668 (0.271 – 1.630)	0.375
Profession				
Other	Ref	Ref	Ref	Ref
Nurse	*3.013 (1.442 – 6.810)*	*0.00496**	*3.023 (1.243 – 8.014)*	*0.0188**
Hospital type				
District general	Ref	Ref	Ref	Ref
Tertiary care	1.17 (0.648 – 2.132)	0.605	0.953 (0.466 – 1.948)	0.895
Moral distress total (per unit)	*1.011 (1.006 – 1.017)*	*0.0000327**	*1.011 (1.005 – 1.018)*	*0.000883**

Experience of moral distress

Causes of moral distress and professionals' responses to it were explored in more depth in the interviews. Three distinct themes emerged in relation to causes of moral distress: providing care perceived to not be in the patient's best interests; resource constraints compromising care; and seniors being unable to protect staff. Illustrative quotes are reported in Table 3. Experiencing moral distress led to a range of negative emotions and behaviours (Supplementary Table 4). Frustration and anger were the most frequently described emotions. Experiencing moral distress could also lead to avoidance of interaction with patients and their family. Some participants described this behaviour as "self-protection". Experiencing and coping with moral distress had led some participants to question their future in intensive care. Junior doctors considering careers in intensive care had changed course after experiencing and struggling to cope with moral distress themselves or observing the impact on more senior colleagues, contemplating whether this was something they wanted for themselves.

Table 3 Illustrative quotes from participant descriptions of scenarios causing moral distress

Causes	Quotation example
Endless care	*"And that kind of torture of not knowing, it's not like there is something difficult to be done and we know what it is, the fact that it just drags and drags and drags on like this with no kind of end in sight, you know, like motorway traffic and you don't know, you know if it's just off the next junction and then you think I can bear it but if this is going to be all the way to Manchester, it's that sort of, it's difficult." (Doctor 5)* *"But the families have lost completely that narrative that this is a child that is going to die or an adult that is going to die soon. Exactly the same way with cancer patients, you know, ultimately someone has got to tell them that their cancer is incurable. That message is lost from these adults and so then the problem is you are starting from a point where these families and individuals have had massive amounts of aggressive interventional care,…. And they have lost the narrative that this is a child ultimately with a life limiting illness." (Doctor 4)*
Disregard for patient wishes	*"…he (the registrar) went to a patient on the ward and had a long chat with the patient …and she basically said, I am done, I want to go home. And I was like okay right, this is a very senior doctor so that's what she said, that's her wishes, and then the next thing I know like she's coming to ITU, getting lined and up and then she died in ITU like five days later or something." (Doctor 3)* *"It was very distressing actually, really distressing because his motives (the consultant) were not about care and comfort for the patient." (Nurse 6)*
External pressures to encourage delivery of perceived futile care	*"I just thought the bit that I didn't understand was like multiple consultants were saying they didn't think she was going to get well and that seemed to be like the collective ITU opinion but we still admitted her because it was what oncology wanted." (Doctor 3)* *"…her family throughout have been, what's the word? I want to say unreasonable but, they have been, they have resisted all honest conversation to the point now that the conversations that we have with them are not honest because they insist that they are not. Just really falsely optimistic despite all the preamble conversations … I feel like somebody should be able to stop it but I don't know who that might be… So then the kind of whole relationship has deteriorated to nothing between the family and the medical team." (Doctor 5)*
Resource constraints compromising care	*"And we only had the capacity to see one of them. And the one that we saw was the sick person but then didn't survive until the following day and the one we didn't see ended up being ventilated for quite some time really, and it felt like we didn't direct our resources to the right place there." (Nurse 5)* *"So for example we had a lady who had a devastating intracranial haemorrhage, she was coming into the unit for neuro prognostication probably the organ donation process. We were stuck with her for hours and it was all the kind of chaos as it is in resus, [with] a grieving family… stuck by this bedside in resus which was like a zoo, there was building work going on, the whole thing was so undignified… They couldn't get the bed [in ICU] because they couldn't get the patients out, you know, everybody is stuck, stuck, stuck and at the end of it I was stuck with this patient in this awful environment with her grieving family, just thinking I can't, this is just unbearable. It was just horrible." (Doctor 5)*
Seniors unable to protect staff	*"I would say the things that preoccupy me are not necessarily clinical things, they are more about my team and if I am concerned about the wellbeing of my team I will often worry about, you know, I don't know what to do about this situation, I don't know how to improve things …There isn't anything I can physically do, I can't magic people to come and help, and the staff appreciate that but it's still kind of, you worry for the people that are there continuing to work and their wellbeing and their stress levels." (Nurse 5)*

Coping with moral distress

Participants described a range of strategies for coping with moral distress, tailoring their strategy to the particular situation. Strategies could be classified as internally or externally focussed. Illustrative quotes are reported in Supplementary Table 5. Internally focussed strategies included personal reflection, mental compartmentalisation, and self-care techniques. Personal reflection was commonly reported as a way of making sense of the distress experienced, however mandatory reflections were less helpful than when it occurred in an organic way. Externally focussed strategies include informal discussions with colleagues, talking to their friends/family, and more formal debrief sessions. The most frequently described and highly valued coping strategy involved talking with colleagues informally, such as chatting in the coffee room. The culture of the team appeared critical to allow informal talking to be effective. Participants valued a supportive environment with a close-knit, honest, and actively caring team. Smaller teams where staff knew each other well were reported as more supportive compared with larger teams where there was more movement of staff. Acknowledgment from a senior team member that a case was particularly distressing was powerful and reassuring. Conversely, seniors not wanting to engage in conversations was reported as detrimental to coping with moral distress.

Participants were asked about models of support that could help staff experiencing moral distress. Illustrative quotes are reported in Table 4. Generally, participants felt that a personalised approach tailored to the particular situation was needed. Formal approaches were seen as more valuable for junior staff who perhaps did not have the same developed coping strategies. In general however, participants felt that informal support would be more authentic, accessible, faster acting, and efficacious. Facilitated discussion was suggested as a way of enhancing the effectiveness of informal talking with colleagues. Multiple participants proposed identifying a nominated group of senior and/or experienced ICU staff who could provide support and advice on an *ad hoc* basis with allocated time to deliver this role. Participants highlighted the importance of organisations valuing the wider working environment in supporting staff to cope with distress. Ensuring avoidable stresses were removed or reduced would enable staff to have more emotional and cognitive capacity to deal with the moral challenges that they faced in their work. For example, adequate car parking, and responsive services such as IT, payroll and HR, were all cited as areas that would improve overall staff wellbeing.

Table 4 Illustrative quotes from participant suggestions for interventions to support coping with moral distress

Interventions	Quotation example
Formal and structured support	*"But getting somebody in to discuss things or an away day or a coffee morning and things, sometimes you don't get the right people going to that do you?... What about the group of staff that don't go on the away day, that drops morale because they didn't go on it. And also they're working with locums and agency, so they're actually having a bad day then. So you can get animosity even just doing something like that." (ACCP 1)* *"Well ideally a psychotherapist or somebody who has that professional backing or professional background to be able to support that because otherwise talking can only go so far." (Nurse 3)*
Group-based approach	*"You're potentially opening yourself up to a whole room of strangers is a bit like alcoholics anonymous, some people wouldn't be up for that." (Other 1)* *"…or, you know. I think you don't want to criticise where you work and knowing that it can come back to you and there is that feeling the more junior you are the easier it is for you to go isn't it, I think there is still that." (Nurse 6)*
Non-healthcare background	*"Yes, so she came in, to kind of give us techniques but she just didn't really relate to healthcare it was more outside. So it just didn't relate to any of us… They can't relate it to us or how it would actually be working in a hospital." (Nurse 1)* *"I think it would be good to talk to people who know the environment because you don't have to explain all of that do you, you can just go in at a level of like mutual understanding and then you can just talk about the problem." (Doctor 5)*
Informal approach	*"What I would say is that where, I don't know, I have always found that the organic process has always been the most helpful. I don't know whether that's because in a sense you kind of have more control over who you go and chat to or whether it just has more authenticity." (Doctor 4)*
Nominated ICU staff for support	*"I do wonder whether a facilitated system would be useful because I think the danger can be that if you've got people who are distressed talking to each other about the distress they can actually spiral down further… Rather than lift themselves out so a moderated sort of peer review or peer forum I guess would be helpful." (Doctor 1)* *"… have an identified person, say go to Adam, if you have got a problem go to Adam or its Adam's month to deal with all the grief or whatever. To say there is a role and you get a small bit of time for the role, the role exists in this place, it's paid for, it's budgeted and that's when it happens and get the right people to do it." (ACCP 2)*
Creating a wider nurturing environment	*"The other thing I think that's really important to think about is actually that going to work is not just about delivering the clinical care. So you know, I have to work in an organisation where commuting to hospital is difficult, where getting parking is difficult, where I don't have any office space, where IT systems are really slow, where the room er, there is a room to sleep in afterhours but it's noisy, it's not particularly dark, the temperature is not well controlled. And I know that all sounds like whinging, but actually one of the real challenges is that we work in organisations which are physically and organisationally not well set up to kind of look after the staff that are working for them." (Doctor 4)*

Discussion

This is the largest study of moral distress in UK ICUs to date and the first to use a multi-centre approach with assessment across ICU professions. Included ICUs were at both district general and teaching hospitals and were of varying size and sub-specialty capability. Moral distress was widespread across included sites and across ICU professions. Moral distress scores were highest in situations related to delivering aggressive treatment that was perceived as futile or not in the patient's best interests, closely followed by lack of resources compromising delivered care. Interview data also identified inability of senior staff to protect their juniors as a cause of moral distress. Moral distress was significantly worse in nurses and was not influenced by age or years of ICU experience. The multiple negative emotions engendered by this repeated experience can lead to withdrawal from engagement with patients and families, likely leading to poorer clinical care, and ultimately to withdrawal from intensive care as a career choice. There was a strong association between higher moral distress scores and intention to leave a current post, or leaving a previous post highlighting the impact moral distress may have on ICU staff retention. It is concerning that one third of participants reported an intention to leave their current post due to moral distress. Interview participants described a range of individualised coping mechanisms when experiencing moral distress. In general, informal support mechanisms were preferred to more formal arrangements. This study took place before the COVID-19 pandemic and it is possible the immense pressures on UK ICU services has had further impact on the experience of moral distress. This should be recognised when considering how this study reflects the current welfare of UK ICU professionals.

The only other quantitative study of moral distress in UK ICUs to date also found moral distress was significantly associated with an intention to leave a post, a finding consistent with international literature.(16, 20, 31, 35) It is increasingly clear that the impact of moral distress appears damaging to staff retention and should be considered by employers.(10, 16) Colville *et al.* were unable to detect a difference in moral distress scores between nurses and doctors and highlight the confounding impact of gender differences. Our larger study found that moral distress in greater in nurses and this difference remained statistically significant after accounting for differences in gender distributions. This finding is consistent with international studies showing that nurses report greater moral distress than doctors.(20, 33, 35) It is also notable that nurses had a significantly greater intention to leave the profession, including in adjusted analyses. Indeed, 37% of nurses included in our study indicated they were considering leaving their current post due to moral distress, compared with 15% of doctors, a concerning finding that potentially has staff retention and workplace planning implications.

Overall moral distress scores were higher in our study than similar research in the USA.(33) Mean moral distress scores were higher in our study across all profession subgroups.(33) At present, there is no other international use of this most up to date quantitative moral distress measure (the MMD-HP) to make further comparisons. Past studies have used the previous version (the Moral Distress Scale – Revised) which uses 21 items, compared with the MMD-HP's 27, therefore precluding direct comparison. A recent study in Ireland during the COVID-19 pandemic does use the MMD-HP, but only selected items and so overall comparisons cannot be made.(36) Almost all highly ranked individual item composite scores were higher in our study than that in the USA.(33) This was most notable for resource-related items, specifically compromised care due to lack of resources/equipment/bed capacity, where the composite moral distress score was substantially higher in our UK study. This was ranked the second highest item by moral distress score in our study for both doctors and nurses, but ranked fifth in a comparative study in the USA.(33) This could reflect differences in healthcare delivery and the provision of critical care beds.(37-39) This high signal of moral distress raises a worrying concern that sub-optimal care may be being delivered due to resource constraints. This study is unable to determine if this is occurring, nevertheless the high levels of moral distress due to resource-related issues should be noted.

It is increasingly clear that moral distress is widespread and detrimental within intensive care.(40-42) A key question is therefore how to prevent and mitigate it. Given our finding of lack of agency as a cause of moral distress, one preventive strategy would be to improve agency and empower clinical staff to speak out. Hamric *et al.* report how a moral distress consultation service was successful in empowering staff in situations where they had felt unheard or powerless.(43)

Our qualitative findings suggest that interventions aimed at combating moral distress require a tailored approach that recognises the individualistic nature of coping with moral distress. Individualised informal support appears the most common coping strategy and is often effective if it takes place in an organisational culture that provides a supportive environment. Our participants frequently reported that smaller ICUs were more supportive and more able to permit informal coping compared with larger ICUs. This is noteworthy as UK intensive care services move towards regionalisation with larger ICUs on a "hub and spoke" model to meet increasing care demands.(44) It may be possible to replicate the benefits of smaller units at larger ICUs by working in smaller, close-knit teams caring for "pods" of beds within the larger ICU. Embedding senior professionals who are nominated to facilitate discussion to cope with moral distress within these teams could be beneficial. Supporting effective coping could produce a positive feedback loop that encourages staff retention, therefore promoting a close-knit team and allowing formation of the staff relationships which appear

so important in facilitating informal coping. Conversely, failure to control moral distress could produce a negative spiral due to its deleterious effects on career decisions.(14, 16, 20)

Our study has several limitations. Firstly, the study is at risk of selection bias. Those experiencing high levels of moral distress may be unwilling to participate and relive their experiences, or alternatively those with low levels of moral distress may not appreciate its value and not take part. We only included those currently working in ICU and so cannot capture those that may have left ICU due to high levels of moral distress. We attempted to improve external validity by including multiple ICUs which had different operational characteristics. Purposive sampling ensured the interview sample reflected the total questionnaire sample and included representation of all hospitals, a range of professions, seniority, age and gender. Secondly, our study includes more nurses than other professions, however this reflects the distribution of ICU professions.(21) Thirdly, this study is a snapshot and may be influenced by how the participant is feeling at that time, or what clinical cases are present on their unit. Moral distress may be a reactive process and be influenced by experiences at that point in time.(45) It is possible that moral distress may fluctuate and change as the clinical case-mix within an ICU changes. It remains unknown how moral distress changes over time and further study is warranted.

This study highlights the widespread nature of moral distress in UK ICUs and across ICU professions. Moral distress is worst in situations related to delivery of aggressive treatment perceived as futile or not in the patient's best interests, and this finding is consistent with previous international research. Moral distress in UK ICUs appears to be more frequently experienced than in North America, in particular moral distress related to resource constraints. Moral distress is greatest in nurses and is independently associated with an intention to leave the profession, both at present and in the past. This study took place before the COVID-19 pandemic and even at that time one third of participants were considering leaving their current position. Moral distress is therefore a pressing problem for NHS trusts and policymakers seeking to retain and support an effective ICU workforce. In order to provide a healthy and sustainable intensive care workforce for the future it will be important to acknowledge moral distress and provide environments that are supportive to staff and facilitate coping strategies. Policy decisions on the provision of intensive care services should take into account the importance of supportive environments and close-knit teams in facilitating coping with the almost inevitable moral distress and psychological pressures associated with working in intensive care.

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Ethics approval

This study involves human participants but an Ethics Committee(s) or Institutional Board(s) exempted this study. Approvals gained from the NHS Health Research Authority (IRAS:238379). University Hospitals Coventry and Warwickshire NHS Trust acted as study sponsor. Local approvals from each study site Research & Development department.

Contribution statement

Study design: AJB, JY, AMS, CB. Study conduct: AJB, JY, AMS, CB. Data analysis: AJB, AMS. Drafting of manuscript: AJB, AMS. Review of manuscript: AJB, JY, AMS, CB.

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Competing interest

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Data sharing statement

Statistical code for analyses used R version 3.6.1 (R Foundation for Statistical Computing) are available on reasonable request.

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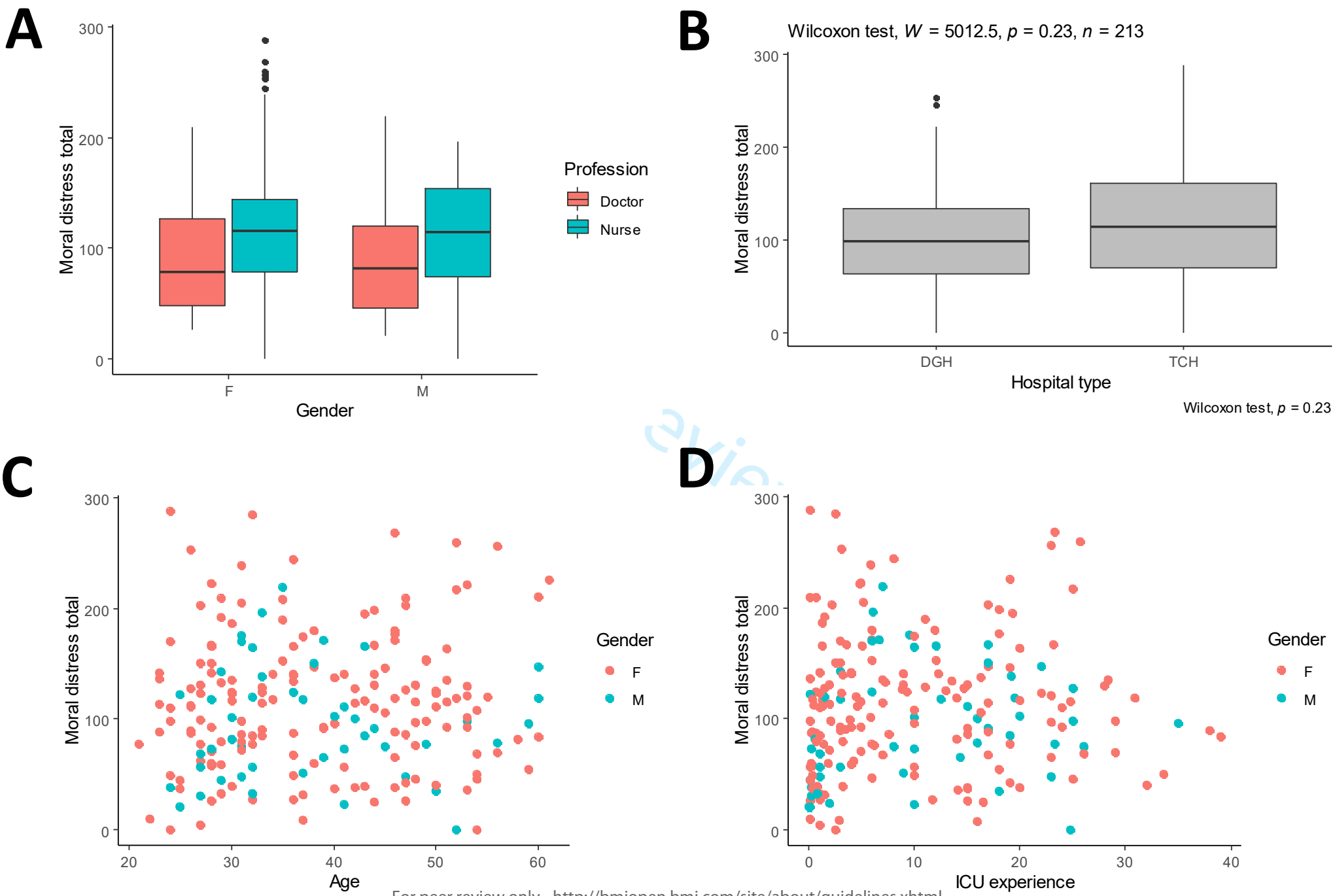
Figures

Figure 1 Relationship between moral distress total and demographic/professional variables. F=Female, M=Male, DGH=District General Hospital, TCH=Tertiary Care Hospital. N=213 as 14 questionnaires excluded due to missing responses preventing calculation of the moral distress score



ID:

Demographics

Moral distress amongst intensive care unit professions in the UK

Moral distress happens when we *cannot do* what we believe is the *ethically right thing* to do because of barriers or constraints.

Work in North America tells us this is a widespread experience and is damaging to healthcare professionals. However, this is poorly studied in the UK and we are interested your experiences.

Profession (please circle): Doctor / Nurse / ACCP / Physiotherapist / Other (please specify).....

Place of work (please circle): BHH / GHH / QEHB / UHCW / Other (please specify) .....

Age: Gender: Grade:

Years of working experience:

Experience in ICU (years and months):

Many thanks for your interest in taking part in this study. Your responses are anonymous.

Please complete the questionnaire overleaf as accurately as possible.

This research is funded by the National Institute of Academic Anaesthesia (NIAA), supported by the NHS National Institute for Health Research (NIHR), and conducted by researchers at the University of Warwick.

<u>This research is independent of your hospital trust</u>

NIAA
National Institute of Academic Anaesthesia

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WARWICK
THE UNIVERSITY OF WARWICK

ID: Demographics

We are inviting participants to undertake a semi-structured interview to further investigate moral distress. This will take approximately 30 minutes. We are interested in your direct experiences of moral distress.

We will do this at a time that is convenient for the participant. If you are willing to take part, please leave your contact details below and we will contact you to arrange a convenient time and place.

Name:

Email:

Mobile number:

ID:

Measure of Moral Distress – Healthcare Professionals (MMD-HP)

Moral distress occurs when professionals cannot carry out what they believe to be ethically appropriate actions because of constraints or barriers. This survey lists situations that occur in clinical practice. If you have experienced these situations they may or may not have been morally distressing to you. Please indicate how frequently you have experienced each item. Also, rank how distressing these situations are for you. If you have never experienced a particular situation, select "0" (never) for frequency. Even if you have not experienced a situation, please indicate how distressed you would be if it occurred in your practice. Note that you will respond to each item by checking the appropriate column for two dimensions with a ●: *Frequency and Level of Distress*.

	Frequency					Level of Distress				
	Never				Very frequently	None				Very distressing
	0	1	2	3	4	0	1	2	3	4
Example entry: *Witness healthcare providers giving "false hope" to a patient or family.*			●						●	
1. Witness healthcare providers giving "false hope" to a patient or family.										
2. Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient.										
3. Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments.										
4. Be unable to provide optimal care due to pressures from administrators or insurers to reduce costs.										
5. Continue to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it.										
6. Be pressured to avoid taking action when I learn that a physician, nurse, or other team colleague has made a medical error and does not report it.										
7. Be required to care for patients whom I do not feel qualified to care for.										
8. Participate in care that causes unnecessary suffering or does not adequately relieve pain or symptoms.										
9. Watch patient care suffer because of a lack of provider continuity.										
10. Follow a physician's or family member's request not to discuss the patient's prognosis with the patient/family.										
11. Witness a violation of a standard of practice or a code of ethics and not feel sufficiently supported to report the violation.										
12. Participate in care that I do not agree with, but do so because of fears of litigation.										
13. Be required to work with other healthcare team members who are not as competent as patient care requires.										
14. Witness low quality of patient care due to poor team communication.										
15. Feel pressured to ignore situations in which patients have not been given adequate information to ensure informed consent.										

ID:

	Frequency					Level of Distress				
	Never				Very frequently	None				Very distressing
	0	1	2	3	4	0	1	2	3	4
16. Be required to care for more patients than I can safely care for.										
17. Experience compromised patient care due to lack of resources/equipment/bed capacity.										
18. Experience lack of administrative action or support for a problem that is compromising patient care.										
19. Have excessive documentation requirements that compromise patient care.										
20. Fear retribution if I speak up.										
21. Feel unsafe/bullied amongst my own colleagues.										
22. Be required to work with abusive patients/family members who are compromising quality of care.										
23. Feel required to overemphasize tasks and productivity or quality measures at the expense of patient care.										
24. Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care.										
25. Work within power hierarchies in teams, units, and my institution that compromise patient care.										
26. Participate on a team that gives inconsistent messages to a patient/family.										
27. Work with team members who do not treat vulnerable or stigmatized patients with dignity and respect.										
If there are other situations in which you have felt moral distress, please write and score them here:										

Have you ever left or considered leaving a clinical position due to moral distress?

- ☐ No, I have never considered leaving or left a position.
- ☐ Yes, I considered leaving but did not leave.
- ☐ Yes, I left a position.

Are you considering leaving your position now?

- ☐ Yes
- ☐ No

Supplementary Table 1 Interview participant demographics

Characteristic	**N=15**
Mean age ±SD – years	40.6±9.1
Gender – no. (%)	
Female	9 (60.0%)
Male	5 (40.0%)
Profession – no. (%)	
Nurse	6 (40.0%)
Band 5	2
Band 7	3
Band 8	1
Doctor	5 (33.3%)
Core trainee level	2
Specialty trainee level	2
Consultant	1
Advanced Critical Care Practitioner (ACCP)	2 (13.3%)
Other	2 (13.3%)
Mean ICU experience ±SD – years	11.1±9.2
Workplace – no. (%)	
Site A	4 (26.7%)
Site B	5 (33.3%)
Site C	6 (40.0%) (3 (20.0%) work at Site D also)

Supplementary Table 2 Top fifteen items ranked by composite moral distress score for nurses and doctors

Situation	Nurses		Doctors	
	Mean (SD)	**Rank**	**Mean (SD)**	**Rank**
Continue to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it.	9.24 (4.62)	1	5.98 (3.38)	4
Experience compromised patient care due to lack of resources/equipment/bed capacity.	8.1 (5.15)	2	7.29 (5.25)	2
Have excessive documentation requirements that compromise patient care.	7.51 (5.46)	3	3.92 (3.99)	8
Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient.	7.45 (4.24)	4	7.45 (4.40)	1
Be required to work with abusive patients/family members who are compromising quality of care.	6.82 (4.82)	5	4.03 (3.93)	7
Be required to care for more patients than I can safely care for.	6.60 (4.95)	6	6.02 (5.30)	3
Be required to work with other healthcare team members who are not as competent as patient care requires.	6.25 (4.87)	7	3.02 (3.57)	15
Witness healthcare providers giving "false hope" to a patient or family.	5.62 (4.05)	8	4.82 (3.73)	6
Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care.	5.57 (4.71)	9	3.75 (3.37)	10
Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments.	5.31 (4.17)	10	3.88 (3.25)	9
Experience lack of administrative action or support for a problem that is compromising patient care.	4.89 (4.53)	11	5.10 (5.33)	5
Witness low quality of patient care due to poor team communication.	4.79 (4.11)	12	3.30 (2.72)	14
Watch patient care suffer because of a lack of provider continuity.	4.57 (4.62)	13	3.37 (3.30)	13
Participate on a team that gives inconsistent messages to a patient/family.	3.84 (3.86)	14	2.10 (2.45)	19
Fear retribution if I speak up.	3.72 (4.74)	15	2.20 (3.74)	17

Supplementary Table 3 Logistic regression model variables and association with the ordinal dependent variable of intention to leave previous post due to moral distress (No, Considered but didn't leave, Left) in univariable and multiple analyses. Italics and * indicate statistically significant association. (OR=Odds Ratio, CI=Confidence Interval)

Variable	**Univariable OR (95% CI)**	***p*-value**	**Multivariable OR (95% CI)**	***p*-value**
Age (per year)	1.021 (0.994 – 1.049)	0.128	1.040 (0.992 – 1.093)	0.106
ICU experience (per year)	1.018 (0.989 – 1.049)	0.226	0.965 (0.914 – 1.019)	0.201
Gender				
Male	Ref	Ref	Ref	Ref
Female	*1.914 (1.025 – 3.629)*	*0.0436**	1.188 (0.554 – 2.560)	0.659
Profession				
Other	Ref	Ref	Ref	Ref
Nurse	*1.845 (1.017 – 3.386)*	*0.0455**	1.460 (0.705 – 3.059)	0.310
Hospital type				
District general	Ref	Ref	Ref	Ref
Tertiary care	1.707 (1.002 – 2.929)	0.0504	1.738 (0.937 – 3.249)	0.0805
Moral distress total (per unit)	*1.010 (1.006 – 1.015)*	*0.0000113**	*1.009 (1.004 – 1.014)*	*0.00122**

Supplementary Table 4 Illustrative quotes of participant responses to moral distress.

Response to moral distress	Quotation example
Frustration, Anger	*"I do find it stressful, I do get quite angry, not in the moment but often, you know, I feel very grumpy or angry walking back to the ITU having done it all. There is just a great frustration." (Doctor 4)* *"And I feel like almost angry at the family for, and then that doesn't feel right, that feels like a really unwelcome feeling to feel angry at this poor family who have had a terrible thing happen to them and just love their loved one and I kind of see that. But it just goes on and on and on and it feels like torture for her, for everybody that looks after her, and it feels like something criminal, you know, it feels worse than" (Doctor 5)*
Upset	*"So at the time I feel like there are tears like behind my eyes and I will feel that kind of like ache in your throat that you get and I feel nauseated and I just feel like just exhausted by it really, you know, you keep trying to apologise to the family, trying to look after the patient as best you can. You know, try and apologise, you know, just kind of try to soften, you try to be the buffer between the situation and the patient and the family but you suffer for that don't you?" (Doctor 5)* *"Yeah definitely, we all sat in one of the side rooms together and everyone had the opportunity to express their feelings, most of us had a good cry, you know, that sort of thing." (Nurse 2)*
Deflation, Dissatisfaction	*"So when I was driving home I felt a bit deflated like I hadn't really done, like I hadn't really done the very best that I could have done although it was quite a messy, it was a bit of a messy situation. And of course lots of clinical situations are very messy, especially when there is more than one team involved and that sort of thing. So I just had a vague sense of feeling dissatisfaction and I should have really known that information before." (Nurse 2)*
Worry	*"I would then go home and pick apart my decisions and ruminate and kind of sabotage myself. And then I can't sleep and then I go to work the next day knackered and I worry that my decision making is worse then and then you spiral don't you I think." (Doctor 5)*
Relatable case	*"You know, you wouldn't want if for yourself or your own family and yet it keeps going on, you know, it's kind of difficult to witness really. And you feel a bit like a perpetrator of it I think." (Doctor 5)*
Avoidance of interaction	*"…my sympathy for the family has deteriorated over time… They come in and I don't like to look at them, so I don't look at them. And that feels inhuman and I think what's become of me, where is my humanity? But it's not that I don't care it's just the situation has got beyond me, that I just think I don't know how to respond to this anymore so I just don't look… that's terrible isn't it? So it is hard, it's really hard." (Doctor 5)* *"Yeah, even in handover she is kind of not mentioned really… yeah definitely emotionally like for self-protection I have kind of switched off a bit." (Doctor 5)*
Impact on career decisions	*"So the NHS for that I think that the amount of trauma that, or emotional trauma that we see that we absorb, that we take on, we don't get the right amount of, in our particular role it has a shelf life of two to four years." (Nurse 3)* *"I have previously actually thought about dual specialising in anaesthesia and intensive care. But my most recent job in intensive care has most definitely made me decide not to. But one of the reasons being in my experience has just been, I don't think it's one I would able to continue and a career that I would be able to continue and still actually remain vaguely sane… That's why a lot of us don't really want to go into it, because it's soul destroying." (Doctor 2)*

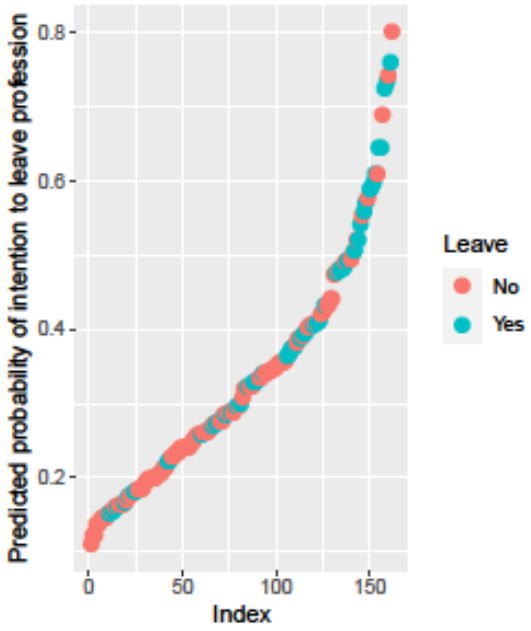
Changes over time	*"The more experience you have definitely the easier it is but I have been really conscious of the burden that the job has on me and kind of being careful and protecting myself. Because if you want longevity you have to understand what it is doing to yourself and have ways of dealing with that." (ACCP 2)* *"I don't know whether this is just me, but personally I feel like I am less able to cope with it now, I get far more emotional now and upset by things then I did when I first started working in critical care… I think probably because of my age, I relate to a lot of the patients now that are either in a similar age range to myself or younger patients that we have that are in a similar age bracket to my children, it really resonates." (Nurse 5)*

Supplementary Table 5 Illustrative quotes from participant descriptions of coping with moral distress

Emotion	Quotation example
Personal reflection	*"I think I just reflect constantly anyway, I don't know if everyone does, I imagine most of us do… I generally just do it in my head when I'm exercising I'll tend to think about, that went well, or that didn't go quite so well, what can I do to improve that next time. No, it's not something I think, right I need to go and meditate because that's upset me or whatever." (Other 2)* *"Yeah I think the moment you make anything mandatory I think you lose quite a lot of the value… So I think it has to be voluntary, I think it has to be something people do because they recognise it for its own value." (Doctor 3)*
Mental compartmentalisation	*"So I tend to compartmentalise work and home, because I have had periods of time before where I have been really, really distressed and it just, it's no good for your home life, so I've kind of, I box things off. I don't know if that is the right way of doing it or not but that's what I tend to do." (Nurse 2)* *"I drive quite a long distance to work and back, so mine sort of goes in the car. I have a little refection and sometimes a little blurt in the car and then by time I've walked through the house, picked the dogs up and walk out, it's gone." (ACCP 1)*
Self-care	*"And then I think it's just trying to keep your own health kind of optimal so that you are physically healthy it makes the difference to being mentally healthy I think. If you are physically healthy it gives you a bit of robustness." (ACCP 2)* *"Yeah I do, I tend to go for long walks I take my dogs, go off with my dogs on lots of long walks and fresh air and open space and I don't mind admitting copious quantities of wine over that weekend. And yeah, that's probably how I, fresh air, exercise, wine." (Nurse 2)*
Informal talking with colleagues	*"I will talk to either another senior registrar so peer support, that can be very helpful or, you know, consultants that I get on with. So in those circumstances I am looking for someone who is, again it's not kind of, it's not an explicit thought process but I will want someone who I know is on a similar wavelength and will be understanding. Oh yes, someone who, yes someone who's opinion I value." (Doctor 4)* *"And it was really useful actually to see people that you are a little bit in awe of sort of like scary Band 7s, it was quite useful to see them sort of actually sort of coming down to our level, the ground level and being distressed by things they have seen… so it was good to see, I was so surprised to see this one particular Band 7 in floods of tears and I thought oh you are human, that's awful isn't it?" (Nurse 2)*
Supportive environment	*"I think what you need is a culture where that's available as and when you need it. And so you know it's alright to sort of say, you know, to some of my bosses or some of my colleagues, actually something shit has just happened can we go and have a cup of tea and a chat... But for me I think that's probably a better approach, is to have the culture where that's okay and then you can go and find what you want from who you want." (Doctor 4)* *"I've worked in small hospitals and large hospitals as a nurse and I do think generally [support is better] in a smaller hospital… you've got a smaller team so you know each other better and when you've got a smaller team, smaller teams do tend to stay put more. Whereas bigger hospitals obviously you might not know the staff that you're on with and things like that. …how are you going to have support from somebody that's an agency who's only there for the day." (ACCP 1)*

	"I think our larger critical care units are not a good idea… I think the bigger units are less personalised and it's hard to maintain and retain a proper team, so it's better to keep the units down to 15 or 20 beds and try and have core teams that don't rotate." (ACCP 2)
Informal talking with friends and family	*"I think because I live with my husband who has no knowledge whatsoever of what goes on in this kind of environment, I do talk about work when I get home, but I don't tend to sort of go into that kind of nitty gritty with him because, I don't know really, I just don't. I think he finds it a bit boring to be honest with you, it's not anything he particularly knows about." (Nurse 2)* *"[I] have peer support, good family support and my wife is an anaesthetist as well so I can talk through stuff with her easily and all the family and friends, I have got lots of friends who are various members of the medical profession." (ACCP 2)*
Formal debrief	*"I have experienced both those both (formal and informal discussions) and I think for the type of a major clinical incident then I think that a formal sort of debriefing top down sort of debriefing to show that you are supported by your sort of managers is probably better for something that is really awful. But working in critical care you are going to come across something that is pretty awful every day. So I think that we as a sort of cohort of nurses just tend to talk to each other informally most of the time." (Nurse 2)* *"Unfortunately, the physical logistics of doing things like the debriefs are virtually impossible, they are not easy, they are really not. You know what it's like you have a unit full of patients, you've got a million jobs to do, you've got five families to talk to and discuss it all with, trying to fit debriefs in around that as well, before you know it's 5:30 and your team have gone home or are hoping to get home on time." (Doctor 2)*

Supplementary Figure 1 Multivariable logistic regression model prediction of intention to leave current post due to moral distress.



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Moral distress amongst intensive care unit professions in the UK: A mixed methods study

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Original research article

Moral distress amongst intensive care unit professions in the UK: A mixed methods study

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Short title:

Moral distress in UK ICUs

Abstract

Objective

To assess the experience of moral distress amongst intensive care unit (ICU) professionals in the UK.

Design

Mixed methods: validated quantitative measure of moral distress followed by purposive sample of responders who underwent semi-structured interviews.

Setting

Four ICUs of varying size and speciality facilities.

Participants

Healthcare professionals working in ICU.

Results

227 questionnaires were returned and 15 interviews performed. Moral distress occurred across all ICUs and professional demographics. It was most commonly related to providing care perceived as futile or against the patient's wishes/interests, followed by resource constraints compromising care. Moral distress score was independently influenced by profession (p=0.02) (nurses 117.0 vs doctors 78.0). A lack of agency was central to moral distress and its negative experience could lead to withdrawal from engaging with patients/families. One-third indicated their intention to leave their current post due to moral distress and this was greater amongst nurses than doctors (37.0% vs 15.0%). Moral distress was independently associated with an intention to leave their current post (p<0.0001) and a previous post (p=0.001). Participants described a range of individualised coping strategies tailored to the situations faced. The most common and highly valued strategies were informal and relied on working within a supportive environment along with a close-knit team, although participants acknowledged there was a role for structured and formalised intervention.

Conclusions

Moral distress is widespread amongst UK ICU professionals and can have an important negative impact on patient care, professional wellbeing, and staff retention, a particularly concerning finding as this study was performed prior to the COVID-19 pandemic. Moral distress due to resource-related issues is more severe than comparable studies in North America. Interventions to support professionals should recognise the individualistic nature of coping with moral distress. The value of

close-knit teams and supportive environments has implications for how intensive care services are organised.

Strengths and limitations of this study

- This multi-centre study included UK ICUs of different size and sub-specialty capability.
- The mixed methods design increased the richness and scope of the data and enabled triangulation of findings.
- There is a risk of selection bias if health care professionals particularly affected by moral distress were more likely to participate.
- The study will not have captured the views and experiences of health professionals who have left the profession because of moral distress.
- The study represents a snapshot of moral distress which may be influenced by specific contextual issues.

Introduction

The COVID-19 pandemic has highlighted the psychological challenges faced by intensive care professionals around the world, including moral distress.(1-4) A survey conducted by the British Medical Association found that 78.4% of doctors experienced moral distress during the pandemic.(5) The importance of staff wellbeing and combatting staff burnout was recognised prior to the pandemic and is a priority for healthcare services worldwide, including the NHS.(6-8) A key contributor to burnout is moral distress.(9-13) Moral distress is a constellation of emotional and psychological features that occur when a professional identifies an ethically correct course of action, but is prevented from following this course.(14-16) It can also occur in situations where there is uncertainty or conflict regarding the ethically correct action.(17-19) It can be deeply damaging to the individual and is associated with a tendency to leave the profession, with a consequent negative impact on patient care.(9, 20) Some authors have suggested the definition of moral distress is broadened to fully capture its experience and recognise that it may also occur in situations of moral uncertainty.(19)

The intensive care unit (ICU) is a place where patients with life-threatening conditions may be treated with a variety of invasive and burdensome interventions.(21) Highly significant, complex, and difficult decisions are made on a regular basis.(22). Treatment in the ICU comprises complex interventions that require a multifaceted approach and interaction of a broad multidisciplinary team, which may include pharmacists, physiotherapists, dieticians, and other allied health professionals. This environment is highly susceptible to moral distress and hence moral distress amongst ICU professions is of concern.(14, 18, 23, 24)

Moral distress was first identified in ICU nurses in North America and has been most frequently studied in this population.(14, 18, 23-25) Similar causes of moral distress have also been found amongst other ICU professionals, including physicians, respiratory therapists, and healthcare students.(20, 26-30) Despite concerns over ICU staff wellbeing, burnout and moral distress in the NHS, moral distress remains poorly studied in the UK.(19, 31, 32) Moral distress may be affected by specific contextual factors such as availability of resources and model of decision making for patients lacking capacity. In the UK the availability of intensive care provision is much less than in North America and the role of proxy decision makers is much more significant.(33-35) These, and other potential differences may affect how moral distress is experienced by UK health professionals.

This study was performed prior to the COVID-19 pandemic and its primary aim was to assess the experience of moral distress amongst ICU professionals in the UK. Secondary aims were to a) identify the most common causes of moral distress; b) determine the relationship between demographic and professional characteristics and moral distress; c) examine the relationship between moral distress

and intention to leave the profession, and d) identify potential interventions to mitigate moral distress.

Methods

The NHS Health Research Authority provided approvals for the study (IRAS:238379) and the research and development (R&D) department at University Hospitals Coventry and Warwickshire NHS Trust acted as study sponsor. The study was approved locally by each site's R&D department.

Participants were recruited from four adult ICUs. Sites A & B are large tertiary care hospitals with major trauma and complex multi-specialty surgical facilities and sites C & D are smaller district general hospitals with fewer specialist services. Sites C and D are part of the same organisational Trust so some staff work across both sites. Bed capacities of sites range from 12 to 80 beds. All full- and part-time healthcare professionals (HCP) working in the ICU were eligible. All grades and clinical professions were included, but students of any profession were excluded.

An anonymous paper questionnaire using the validated Measure of Moral Distress for Healthcare Professionals (MMD-HP (Supplementary File 1)) was distributed between February 2019 and February 2020.(36) The MMD-HP is a 27-item questionnaire that utilises a 0-4 point Likert scale to assess the frequency with which situations arise and the intensity of the moral distress caused.(25, 36) These are summed to produce overall frequency and intensity scores. Individual item frequency and intensity scores are multiplied together to produce a composite item score and these summed to generate an overall moral distress score. A free text section allows participants to describe additional scenarios not included in the MMD-HP inventory. The MMD-HP also includes two related questions concerning intention to leave the profession now or in the past due to moral distress.(36) Participant demographics were collected including profession, grade, age, gender, and years of ICU working experience.

Descriptive statistics were used to summarise demographics and moral distress scores. Individual item scores were ranked for comparison. Moral distress scores were non-normally distributed, as found in previous studies,(20, 31) and hence are presented as medians with IQRs and non-parametric statistical tests were used (Wilcoxon signed rank, Kruskal-Wallis). A sample size requirement calculation was not performed as there was inadequate UK data using the MMD-HP. Multiple linear regression was used to investigate the relationship between age and ICU experience and moral distress scores. Multiple logistic regression models were fitted to determine the association between moral distress scores and

tendency to leave the profession. Covariates were pre-specified demographic and professional variables, with binary classification used for profession (nurse vs other) and hospital type (tertiary care vs district general). Discrimination of logistic regression models was assessed using area under the receiver operator curve (ROC AUC). For tendency to leave a previous position, an ordinal logistic regression was used in accordance with the ordinal dependent variable. Statistical analyses were performed using R version 3.6.1 (R Foundation for Statistical Computing) with the code for analyses available on request.

Questionnaire respondents willing to take part in an interview included their contact details on the returned questionnaire and from those responders, potential interview participants were purposively sampled for hospital, profession, grade, and overall moral distress score using a maximum variation approach. Written informed consent was obtained prior to interview. Semi-structured interviews with an interview guide (Supplementary File 2) were conducted face to face between July 2019 and February 2020 and explored participants experience of moral distress, the situations that cause it, strategies they use to cope with it; and their views on possible interventions to alleviate moral distress. Interviews lasted approximately 30 mins and were audio-recorded then transcribed verbatim. Interviews were conducted until no new themes emerged from the data. The Framework Method of thematic analysis was used.(37) Transcripts were loaded onto NVivo and data initially organised into content areas informed by the study aims: experience of moral distress and coping with moral distress. Within each area two main categories were explored: precipitating factors/causes of moral distress and the response to distress; coping strategies and interventions to support coping. This is described in Supplementary Figure 1. Data within each content area was then re-read and coded inductively, and codes compared and grouped to develop themes and sub-themes. All transcripts were coded by AB with 30% independently coded by AMS. The codes and emerging themes and sub-themes were discussed at regular analysis meetings to improve the analysis validity and trustworthiness.

Patient and Public Involvement

The study received contributions from the patient and public representatives from the University Hospitals Birmingham Clinical Research Ambassador Group. The members supported the proposed study and the saw potential for the work to benefit staff wellbeing and patient care. The group contributed to the study design, development of study documentation, including the protocol and participant information sheet, and the dissemination plan.

Results

Two hundred and twenty-seven questionnaires were returned from a total of 772 questionnaires distributed across all sites, giving an overall response rate of 29.4% (site A 28.3%, site B 24.0%, sites C & D 34.6%). Participant demographics are described in Table 1. Forty-one of the 227 participants completing the paper questionnaire indicated a willingness to take part in an interview, twenty-one were contacted with an invitation and further information about the interview study and 15 agreed to be interviewed. Interview participant demographics are summarised in Supplementary Table 1.

The quantitative results from the MMD-HP are presented first, followed by the qualitative results grouped into experience of moral distress and coping with moral distress.

Table 1 Participant demographics

Characteristic	**N=227**
Mean age ±SD – years	38.1±10.3
Gender – no. (%)	
Female	165 (72.7%)
Male	52 (23.0%)
Not answered	10 (4.4%)
Profession – no. (%)	
Nurse	145 (63.9%)
Doctor	40 (17.6%)
Physiotherapist	9 (4.0%)
Advanced Critical Care Practitioner	8 (3.5%)
Pharmacist	2 (0.9%)
Not answered	23 (10.1%)
Mean ICU experience ±SD – years	10.1±9.2

Moral distress items

Fourteen questionnaires were excluded due to missing responses preventing calculation of the moral distress score. Items are ranked by compositive score for nurses and doctors in Supplementary Table 2. The most highly scored items by both nurses and doctors related to delivering aggressive treatment that was perceived as futile or not in the patient's best interests. Other highly ranked items related to lack of resources, caring for more patients than is considered safe, excessive documentation, lack of administrative support, and abusive patients/family members compromising care. Nurses generally rated moral distress frequency and intensity more highly than doctors. Only four of the 27 items had a greater composite score for doctors over nurses and there was no commonality in the root causes of these scenarios.

Moral distress score associations

Total composite moral distress scores were positively skewed with a median score of 108 (IQR 78.2, range 0 to 288). The relationship between overall moral distress score and demographic characteristics are summarised in Figure 1. Moral distress was greater in females than males (111.5 (IQR 75.5) vs 94.0 (IQR 69.3), W=4755.5, p=0.043) and was significantly influenced by profession (H=11.89, p=0.018) with nurses reporting greater moral distress than doctors (117.0 (IQR 65.5) vs 78.0 (IQR 73.0)). There were differences in the distribution of gender across professions (Nurse: 83.7% female; Doctor: 40.0% female). Differences in moral distress between nurses and doctors persisted after statistical adjustment for differences in gender across professions (p=0.020). There was no relationship between overall moral distress score and participant age and ICU experience. This was confirmed with multiple linear regression where an interaction effects model of age and ICU experience against overall moral distress could only explain less than 1% of the variation in moral distress (adjusted R^2 0.0089). Median moral distress scores were higher in larger tertiary care hospitals than district general hospitals, however this did not reach statistical significance (114.5 (IQR 91.8) vs 98.0 (IQR 69.9), W=5012.5 p=0.23).

Intention to leave the profession

Seventy-one (33.3%) participants indicated their intention to leave their current post due to moral distress. Twenty-eight (13.1%) participants reported they had left a previous post due to moral distress and 101 (47.4%) reported they had considered leaving a previous post due to moral distress but did not leave. Overall moral distress was significantly greater in those intending to leave their current post (135.5 (IQR 84.5) vs 88.9 (IQR 65.3), W=2771.5 p<0.0001) and this difference was confirmed in both univariate and multiple logistic regression analyses. Logistic regression model variable ORs are summarised in Table 2. Multiple logistic regression included profession, gender, hospital type, age and

ICU experience as covariates and had good discrimination (ROC AUC 0.722) and ability to predict intention to leave (Supplementary Figure 2). Adjusted odds ratio for moral distress score against intention to leave was 1.011 (95% CI 1.005-1.017, p<0.001).

A greater proportion of nurses were considering leaving their current post due to moral distress than doctors (37.0% vs 15.0%). Nurses had a significantly greater odds of reporting an intention to leave the profession in both unadjusted (OR 3.013, 95% CI 1.442-6.810, p<0.01) and adjusted analyses (adjOR 3.023, 95% CI 1.243-8.014, p=0.019). There was no significant association between gender and intention to leave the profession in either unadjusted or adjusted models.

Moral distress score was significantly associated with the ordinal outcome of leaving a previous post in unadjusted and adjusted analyses (OR 1.010, 95% CI 1.006-1.015, p<0.0001; adjOR 1.009, 95% CI 1.004-1.014, p=0.001). Female gender and nurse profession were not significantly associated with leaving a previous post in adjusted analyses. Ordinal logistic regression model variable ORs are summarised in Supplementary Table 3.

Table 2 Logistic regression model variables and association with intention to leave current post in univariable and multiple analyses. Italics and * indicate statistically significant association. (OR=Odds Ratio, CI=Confidence Interval)

Variable	**Univariable OR (95% CI)**	***p*-value**	**Multivariable OR (95% CI)**	***p*-value**
Age (per year)	0.995 (0.966 – 1.024)	0.739	0.982 (0.929 – 1.036)	0.516
ICU experience (per year)	1.005 (0.973 – 1.038)	0.762	1.009 (0.929 – 1.072)	0.781
Gender				
Male	Ref	Ref	Ref	Ref
Female	1.289 (0.645 – 2.679)	0.482	0.668 (0.271 – 1.630)	0.375
Profession				
Other	Ref	Ref	Ref	Ref
Nurse	*3.013 (1.442 – 6.810)*	*0.00496**	*3.023 (1.243 – 8.014)*	*0.0188**
Hospital type				
District general	Ref	Ref	Ref	Ref
Tertiary care	1.17 (0.648 – 2.132)	0.605	0.953 (0.466 – 1.948)	0.895
Moral distress total (per unit)	*1.011 (1.006 – 1.017)*	*0.0000327**	*1.011 (1.005 – 1.018)*	*0.000883**

The qualitative results from interviews are reported below and are reported by content area: experience of moral distress and coping with moral distress

Experience of moral distress

During analysis two areas of experience were considered; precipitating factors/causes of moral distress and the response to distress. Three distinct themes emerged in relation to causes of moral distress. The dominant theme was of moral distress due to a perception that care provided was not in the patient's best interests. Participants talked about a feeling of helplessness in the face of seemingly endless and potentially futile, delivering care that disregarded patient wishes, and external pressure to provide care that is seen as not in the patient's interests. The two other themes in this area were resource constraints compromising care; and inability to protect more junior staff. Responses to moral distress were categorised in the following themes: negative emotional response; avoidance of patient and family; impact on future career decisions; moral distress changing over time. Experiencing moral distress led to a range of negative emotions and behaviours. Frustration and anger were the most frequently described emotions. Experiencing moral distress could also lead to avoidance of interaction with patients and their family. Some participants described this behaviour as "self-protection". Experiencing and coping with moral distress had led some participants to question their future in intensive care. Junior doctors considering careers in intensive care had changed course after experiencing and struggling to cope with moral distress themselves or observing the impact on more senior colleagues, contemplating whether this was something they wanted for themselves. Some participants suggested moral distress got better with increasing ICU experience as they were better able to rationalise situations, manage emotions, and/or had improved coping strategies and resilience. Conversely, others felt that moral distress got worse over time, either because they were more aware of situations where patient care could be better, or because their increasing age made cases more personally relatable. Illustrative quotes for these themes within experience of moral distress are reported in Table 3.

Table 3 Illustrative quotes from participant experience of moral distress

Content area	Theme	Quotation example
Precipitating factors/ causes of moral distress	Endless care	*"And that kind of torture of not knowing, it's not like there is something difficult to be done and we know what it is, the fact that it just drags and drags and drags on like this with no kind of end in sight, you know, like motorway traffic and you don't know, you know if it's just off the next junction and then you think I can bear it but if this is going to be all the way to Manchester, it's that sort of, it's difficult." (Doctor 5)* *"But the families have lost completely that narrative that this is a child that is going to die or an adult that is going to die soon. Exactly the same way with cancer patients, you know, ultimately someone has got to tell them that their cancer is incurable. That message is lost from these adults and so then the problem is you are starting from a point where these families and individuals have had massive amounts of aggressive interventional care,…. And they have lost the narrative that this is a child ultimately with a life limiting illness." (Doctor 4)*
	Disregard for patient wishes	*"…he (the registrar) went to a patient on the ward and had a long chat with the patient …and she basically said, I am done, I want to go home. And I was like okay right, this is a very senior doctor so that's what she said, that's her wishes, and then the next thing I know like she's coming to ITU, getting lined and up and then she died in ITU like five days later or something." (Doctor 3)* *"It was very distressing actually, really distressing because his motives (the consultant) were not about care and comfort for the patient." (Nurse 6)*
	External pressures to encourage delivery of perceived futile care	*"I just thought the bit that I didn't understand was like multiple consultants were saying they didn't think she was going to get well and that seemed to be like the collective ITU opinion but we still admitted her because it was what oncology wanted." (Doctor 3)* *"…her family throughout have been, what's the word? I want to say unreasonable but, they have been, they have resisted all honest conversation to the point now that the conversations that we have with them are not honest because they insist that they are not. Just really falsely optimistic despite all the preamble conversations … I feel like somebody should be able to stop it but I don't know who that might be… So then the kind of whole relationship has deteriorated to nothing between the family and the medical team." (Doctor 5)*
	Resource constraints compromising care	*"And we only had the capacity to see one of them. And the one that we saw was the sick person but then didn't survive until the following day and the one we didn't see ended up being ventilated for quite some time really, and it felt like we didn't direct our resources to the right place there." (Nurse 5)* *"So for example we had a lady who had a devastating intracranial haemorrhage, she was coming into the unit for neuro prognostication probably the organ donation process. We were stuck with her for hours and it was all the kind of chaos as it is in resus, [with] a grieving family… stuck by this bedside in resus which was like a zoo, there was building work going on, the whole thing was so undignified… They couldn't get the bed [in ICU] because they couldn't get the patients out, you know, everybody is stuck, stuck, stuck and at the end of it I was stuck with this patient in this awful environment with her grieving family, just thinking I can't, this is just unbearable. It was just horrible." (Doctor 5)*
	Seniors unable to protect staff	*"I would say the things that preoccupy me are not necessarily clinical things, they are more about my team and if I am concerned about the wellbeing of my team I will often worry about, you know, I don't know what to do about this situation, I don't know how to improve things …There isn't anything I can physically do, I can't magic people to come and help, and the staff appreciate that but it's still kind of, you worry for the people that are there continuing to work and their wellbeing and their stress levels." (Nurse 5)*
Response to moral distress	Frustration, Anger	*"I do find it stressful, I do get quite angry, not in the moment but often, you know, I feel very grumpy or angry walking back to the ITU having done it all. There is just a great frustration." (Doctor 4)* *"And I feel like almost angry at the family for, and then that doesn't feel right, that feels like a really unwelcome feeling to feel angry at this poor family who have had a terrible thing happen to them and just love their loved one and I kind of see that. But it just goes on and on and on and it feels like torture for her, for everybody that looks after her, and it feels like something criminal, you know, it feels worse than" (Doctor 5)*

	Upset	*"So at the time I feel like there are tears like behind my eyes and I will feel that kind of like ache in your throat that you get and I feel nauseated and I just feel like just exhausted by it really, you know, you keep trying to apologise to the family, trying to look after the patient as best you can. You know, try and apologise, you know, just kind of try to soften, you try to be the buffer between the situation and the patient and the family but you suffer for that don't you?" (Doctor 5)* *"Yeah definitely, we all sat in one of the side rooms together and everyone had the opportunity to express their feelings, most of us had a good cry, you know, that sort of thing." (Nurse 2)*
	Deflation, Dissatisfaction	*"So when I was driving home I felt a bit deflated like I hadn't really done, like I hadn't really done the very best that I could have done although it was quite a messy, it was a bit of a messy situation. And of course lots of clinical situations are very messy, especially when there is more than one team involved and that sort of thing. So I just had a vague sense of feeling dissatisfaction and I should have really known that information before." (Nurse 2)*
	Worry	*"I would then go home and pick apart my decisions and ruminate and kind of sabotage myself. And then I can't sleep and then I go to work the next day knackered and I worry that my decision making is worse then and then you spiral don't you I think." (Doctor 5)*
	Relatable case	*"You know, you wouldn't want if for yourself or your own family and yet it keeps going on, you know, it's kind of difficult to witness really. And you feel a bit like a perpetrator of it I think." (Doctor 5)*
	Avoidance of interaction	*"…my sympathy for the family has deteriorated over time… They come in and I don't like to look at them, so I don't look at them. And that feels inhuman and I think what's become of me, where is my humanity? But it's not that I don't care it's just the situation has got beyond me, that I just think I don't know how to respond to this anymore so I just don't look… that's terrible isn't it? So it is hard, it's really hard." (Doctor 5)* *"Yeah, even in handover she is kind of not mentioned really… yeah definitely emotionally like for self-protection I have kind of switched off a bit." (Doctor 5)*
	Impact on career decisions	*"So the NHS for that I think that the amount of trauma that, or emotional trauma that we see that we absorb, that we take on, we don't get the right amount of, in our particular role it has a shelf life of two to four years." (Nurse 3)* *"I have previously actually thought about dual specialising in anaesthesia and intensive care. But my most recent job in intensive care has most definitely made me decide not to. But one of the reasons being in my experience has just been, I don't think it's one I would able to continue and a career that I would be able to continue and still actually remain vaguely sane… That's why a lot of us don't really want to go into it, because it's soul destroying." (Doctor 2)*
	Changes over time	*"The more experience you have definitely the easier it is but I have been really conscious of the burden that the job has on me and kind of being careful and protecting myself. Because if you want longevity you have to understand what it is doing to yourself and have ways of dealing with that." (ACCP 2)* *"I don't know whether this is just me, but personally I feel like I am less able to cope with it now, I get far more emotional now and upset by things then I did when I first started working in critical care… I think probably because of my age, I relate to a lot of the patients now that are either in a similar age range to myself or younger patients that we have that are in a similar age bracket to my children, it really resonates." (Nurse 5)*

Coping with moral distress

Two areas were considered; coping strategies for moral distress and interventions to support coping with moral distress. Participants described a range of strategies for coping with moral distress, tailoring their strategy to the particular situation. Strategies could be classified as internally or externally focussed. Internally focussed strategies included personal reflection, mental compartmentalisation, and self-care techniques. Personal reflection was commonly reported as a way of making sense of the distress experienced, however mandatory reflections were less helpful than when it occurred in an organic way. Externally focussed strategies include informal discussions with colleagues, talking to their friends/family, and more formal debrief sessions. The most frequently described and highly valued coping strategy involved talking with colleagues informally, such as chatting in the coffee room. The culture of the team appeared critical to allow informal talking to be effective. Participants valued a supportive environment with a close-knit, honest, and actively caring team. Smaller teams where staff knew each other well were reported as more supportive compared with larger teams where there was more movement of staff. Acknowledgment from a senior team member that a case was particularly distressing was powerful and reassuring. Conversely, seniors not wanting to engage in conversations was reported as detrimental to coping with moral distress.

Participants were asked about interventions to support coping with moral distress. Generally, participants felt that a personalised approach tailored to the particular situation was needed. Formal approaches were seen as more valuable for junior staff who perhaps did not have the same developed coping strategies. In general however, participants felt that informal support would be more authentic, accessible, faster acting, and efficacious. Facilitated discussion was suggested as a way of enhancing the effectiveness of informal talking with colleagues. Multiple participants proposed identifying a nominated group of senior and/or experienced ICU staff who could provide support and advice on an *ad hoc* basis with allocated time to deliver this role. Participants highlighted the importance of organisations valuing the wider working environment in supporting staff to cope with distress. Ensuring avoidable stresses were removed or reduced would enable staff to have more emotional and cognitive capacity to deal with the moral challenges that they faced in their work. For example, adequate car parking, and responsive services such as IT, payroll and HR, were all cited as areas that would improve overall staff wellbeing.

Illustrative quotes for these themes from coping with moral distress are reported in Table 4.

Table 4 Illustrative quotes from participant coping with moral distress

Content area	Theme	Quotation example
Coping strategies	Personal reflection	*"I think I just reflect constantly anyway, I don't know if everyone does, I imagine most of us do… I generally just do it in my head when I'm exercising I'll tend to think about, that went well, or that didn't go quite so well, what can I do to improve that next time. No, it's not something I think, right I need to go and meditate because that's upset me or whatever." (Other 2)* *"Yeah I think the moment you make anything mandatory I think you lose quite a lot of the value… So I think it has to be voluntary, I think it has to be something people do because they recognise it for its own value." (Doctor 3)*
	Mental compartmentalisation	*"So I tend to compartmentalise work and home, because I have had periods of time before where I have been really, really distressed and it just, it's no good for your home life, so I've kind of, I box things off. I don't know if that is the right way of doing it or not but that's what I tend to do." (Nurse 2)* *"I drive quite a long distance to work and back, so mine sort of goes in the car. I have a little refection and sometimes a little blurt in the car and then by time I've walked through the house, picked the dogs up and walk out, it's gone." (ACCP 1)*
	Self-care	*"And then I think it's just trying to keep your own health kind of optimal so that you are physically healthy it makes the difference to being mentally healthy I think. If you are physically healthy it gives you a bit of robustness." (ACCP 2)* *"Yeah I do, I tend to go for long walks I take my dogs, go off with my dogs on lots of long walks and fresh air and open space and I don't mind admitting copious quantities of wine over that weekend. And yeah, that's probably how I, fresh air, exercise, wine." (Nurse 2)*
	Informal talking with colleagues	*"I will talk to either another senior registrar so peer support, that can be very helpful or, you know, consultants that I get on with. So in those circumstances I am looking for someone who is, again it's not kind of, it's not an explicit thought process but I will want someone who I know is on a similar wavelength and will be understanding. Oh yes, someone who, yes someone who's opinion I value." (Doctor 4)* *"And it was really useful actually to see people that you are a little bit in awe of sort of like scary Band 7s, it was quite useful to see them sort of actually sort of coming down to our level, the ground level and being distressed by things they have seen… so it was good to see, I was so surprised to see this one particular Band 7 in floods of tears and I thought oh you are human, that's awful isn't it?" (Nurse 2)*
	Supportive environment	*"I think what you need is a culture where that's available as and when you need it. And so you know it's alright to sort of say, you know, to some of my bosses or some of my colleagues, actually something shit has just happened can we go and have a cup of tea and a chat... But for me I think that's probably a better approach, is to have the culture where that's okay and then you can go and find what you want from who you want." (Doctor 4)* *"I've worked in small hospitals and large hospitals as a nurse and I do think generally [support is better] in a smaller hospital… you've got a smaller team so you know each other better and when you've got a smaller team, smaller teams do tend to stay put more. Whereas bigger hospitals obviously you might not know the staff that you're on with and things like that. …how are you going to have support from somebody that's an agency who's only there for the day." (ACCP 1)* *"I think our larger critical care units are not a good idea… I think the bigger units are less personalised and it's hard to maintain and retain a proper team, so it's better to keep the units down to 15 or 20 beds and try and have core teams that don't rotate." (ACCP 2)*
	Informal talking with friends and family	*"I think because I live with my husband who has no knowledge whatsoever of what goes on in this kind of environment, I do talk about work when I get home, but I don't tend to sort of go into that kind of nitty gritty with him because, I don't know really, I just don't. I think he finds it a bit boring to be honest with you, it's not anything he particularly knows about." (Nurse 2)*

		"[I] have peer support, good family support and my wife is an anaesthetist as well so I can talk through stuff with her easily and all the family and friends, I have got lots of friends who are various members of the medical profession." (ACCP 2)
	Formal debrief	*"I have experienced both those both (formal and informal discussions) and I think for the type of a major clinical incident then I think that a formal sort of debriefing top down sort of debriefing to show that you are supported by your sort of managers is probably better for something that is really awful. But working in critical care you are going to come across something that is pretty awful every day. So I think that we as a sort of cohort of nurses just tend to talk to each other informally most of the time." (Nurse 2)* *"Unfortunately, the physical logistics of doing things like the debriefs are virtually impossible, they are not easy, they are really not. You know what it's like you have a unit full of patients, you've got a million jobs to do, you've got five families to talk to and discuss it all with, trying to fit debriefs in around that as well, before you know it's 5:30 and your team have gone home or are hoping to get home on time." (Doctor 2)*
Interventions to support coping	Formal and structured support	*"But getting somebody in to discuss things or an away day or a coffee morning and things, sometimes you don't get the right people going to that do you?... What about the group of staff that don't go on the away day, that drops morale because they didn't go on it. And also they're working with locums and agency, so they're actually having a bad day then. So you can get animosity even just doing something like that." (ACCP 1)* *"Well ideally a psychotherapist or somebody who has that professional backing or professional background to be able to support that because otherwise talking can only go so far." (Nurse 3)*
	Group-based approach	*"You're potentially opening yourself up to a whole room of strangers is a bit like alcoholics anonymous, some people wouldn't be up for that." (Other 1)* *"…or, you know. I think you don't want to criticise where you work and knowing that it can come back to you and there is that feeling the more junior you are the easier it is for you to go isn't it, I think there is still that." (Nurse 6)*
	Non-healthcare background	*"Yes, so she came in, to kind of give us techniques but she just didn't really relate to healthcare it was more outside. So it just didn't relate to any of us… They can't relate it to us or how it would actually be working in a hospital." (Nurse 1)* *"I think it would be good to talk to people who know the environment because you don't have to explain all of that do you, you can just go in at a level of like mutual understanding and then you can just talk about the problem." (Doctor 5)*
	Informal approach	*"What I would say is that where, I don't know, I have always found that the organic process has always been the most helpful. I don't know whether that's because in a sense you kind of have more control over who you go and chat to or whether it just has more authenticity." (Doctor 4)*
	Nominated ICU staff for support	*"I do wonder whether a facilitated system would be useful because I think the danger can be that if you've got people who are distressed talking to each other about the distress they can actually spiral down further… Rather than lift themselves out so a moderated sort of peer review or peer forum I guess would be helpful." (Doctor 1)* *"… have an identified person, say go to Adam, if you have got a problem go to Adam or its Adam's month to deal with all the grief or whatever. To say there is a role and you get a small bit of time for the role, the role exists in this place, it's paid for, it's budgeted and that's when it happens and get the right people to do it." (ACCP 2)*

Lack of agency

Throughout participant descriptions of the various facets of moral distress, a key overarching theme of lack of agency emerged. This was consistent across professions and persisted through different contexts of moral distress, descriptions of scenarios, responses to moral distress, and coping strategies and interventions for moral distress. This powerlessness and sense of a lack of control appears central in the development of moral distress and how individuals respond to and cope with it.

"I came away feeling a bit guilty but equally knowing that there was nothing I could have done to avoid that." (Other 2)

"Yeah the more you reflect on it, maybe it's better not to reflect too heavily on it… your hands are essentially tied aren't they?" (ACCP 2)

"I feel like somebody should be able to stop it but I don't know who that might be." (Doctor 5)

Discussion

This is the largest study of moral distress in UK ICUs to date and the first to use a multi-centre approach with assessment across ICU professions. Included ICUs were at both district general and teaching hospitals and were of varying size and sub-specialty capability. Moral distress was widespread across included sites and across ICU professions. Moral distress scores were highest in situations related to delivering aggressive treatment that was perceived as futile or not in the patient's best interests, closely followed by lack of resources compromising delivered care. Interview data also identified inability of senior staff to protect their juniors as a cause of moral distress. Moral distress was significantly worse in nurses and was not influenced by age or years of ICU experience. The multiple negative emotions engendered by this repeated experience can lead to withdrawal from engagement with patients and families, likely leading to poorer clinical care, and ultimately to withdrawal from intensive care as a career choice. There was a strong association between higher moral distress scores and intention to leave a current post, or leaving a previous post highlighting the impact moral distress may have on ICU staff retention. It is concerning that one third of participants reported an intention to leave their current post due to moral distress. Interview participants described a range of individualised coping mechanisms when experiencing moral distress. In general, informal support mechanisms were preferred to more formal arrangements. This study took place before the COVID-19 pandemic and it is possible the immense pressures on UK ICU services has had further impact on the experience of moral distress. This should be recognised when considering how this study reflects the current welfare of UK ICU professionals.

The only other quantitative study of moral distress in UK ICUs to date also found moral distress was significantly associated with an intention to leave a post, a finding consistent with international literature.(16, 20, 31, 38) It is increasingly clear that the impact of moral distress appears damaging to staff retention and should be considered by employers.(10, 16) Colville *et al.* were unable to detect a difference in moral distress scores between nurses and doctors and highlight the confounding impact of gender differences. Our larger study found that moral distress in greater in nurses and this difference remained statistically significant after accounting for differences in gender distributions. This finding is consistent with international studies showing that nurses report greater moral distress than doctors.(20, 36, 38) It is also notable that nurses had a significantly greater intention to leave the profession, including in adjusted analyses. Indeed, 37% of nurses included in our study indicated they were considering leaving their current post due to moral distress, compared with 15% of doctors. This is consistent with research from Canada,(20) and is a concerning finding that potentially has staff retention and workplace planning implications.

Compared to similar research in the USA also using the most up to date measure of moral distress, overall moral distress scores were higher in our study, and this was consistent across all professional subgroups.(36) Almost all highly ranked individual item composite scores were higher in our study than that in the USA. This was most notable for resource-related items, specifically compromised care due to lack of resources/equipment/bed capacity, where the composite moral distress score was substantially higher in our UK study. This was ranked the second highest item by moral distress score in our study for both doctors and nurses, but ranked fifth in the comparative USA study. This could reflect differences in healthcare delivery and poorer provision of critical care beds per population in the UK.(33-35) This high signal of moral distress raises a worrying concern that sub-optimal care may be being delivered due to resource constraints. This study is unable to determine if this is occurring, nevertheless the high levels of moral distress due to resource-related issues should be noted.

Our finding that moral distress occurs frequently in situations related to delivery of aggressive treatment perceived as futile or not in the patient's best interests is consistent with international research using the previous versions of the quantitative moral distress scale.(14, 25, 31) It is also supported by other qualitative studies.(18, 19, 26)

It is increasingly clear that moral distress is widespread and detrimental within intensive care.(39-41) A key question is therefore how to prevent and mitigate it. Given our finding of lack of agency as a driver of moral distress, one preventive strategy would be to improve agency and empower clinical staff to speak out. Hamric *et al.* report how a moral distress consultation service was successful in empowering staff in situations where they had felt unheard or powerless.(42)

Our qualitative findings suggest that interventions aimed at combating moral distress require a tailored approach that recognises the individualistic nature of coping with moral distress. Individualised informal support appears the most common coping strategy and is often effective if it takes place in an organisational culture that provides a supportive environment. Our participants frequently reported that smaller ICUs were more supportive and more able to permit informal coping compared with larger ICUs. This is noteworthy as UK intensive care services move towards regionalisation with larger ICUs on a "hub and spoke" model to meet increasing care demands.(43) It may be possible to replicate the benefits of smaller units at larger ICUs by working in smaller, close-knit teams caring for "pods" of beds within the larger ICU. Embedding senior professionals who are nominated to facilitate discussion to cope with moral distress within these teams could be beneficial. Supporting effective coping could produce a positive feedback loop that encourages staff retention, therefore promoting a close-knit team and allowing formation of the staff relationships which appear so important in facilitating informal coping. Conversely, failure to control moral distress could produce a negative spiral due to its deleterious effects on career decisions.(14, 16, 20)

Our study has several limitations. Firstly, the study is at risk of selection bias. Those experiencing high levels of moral distress may be unwilling to participate and relive their experiences, or alternatively those with low levels of moral distress may not appreciate its value and not take part. This may be reflected in the response rate. We only included those currently working in ICU and so cannot capture those that may have left ICU due to high levels of moral distress. We attempted to improve external validity by including multiple ICUs which had different operational characteristics. Purposive sampling ensured the interview sample reflected the total questionnaire sample and included representation of all hospitals, a range of professions, seniority, age and gender. Secondly, our study includes more nurses than other professions, however this reflects the distribution of ICU professions.(21) Thirdly, this study is a snapshot and may be influenced by how the participant is feeling at that time, or what clinical cases are present on their unit. Moral distress may be a reactive process and be influenced by experiences at that point in time.(44) It is possible that moral distress may fluctuate and change as the clinical case-mix within an ICU changes. It remains unknown how moral distress changes over time and further study is warranted.

This study highlights the widespread nature of moral distress in UK ICUs and across ICU professions. Moral distress is worst in situations related to delivery of aggressive treatment perceived as futile or not in the patient's best interests, and this finding is consistent with previous international research. Moral distress in UK ICUs appears to be more frequently experienced than in North America, in particular moral distress related to resource constraints. Moral distress is greatest in nurses and is independently associated with an intention to leave the profession, both at present and in the past.

This study took place before the COVID-19 pandemic and even at that time one third of participants were considering leaving their current position. Moral distress is therefore a pressing problem for NHS trusts and policymakers seeking to retain and support an effective ICU workforce. In order to provide a healthy and sustainable intensive care workforce for the future it will be important to acknowledge moral distress and provide environments that are supportive to staff and facilitate coping strategies. Policy decisions on the provision of intensive care services should take into account the importance of supportive environments and close-knit teams in facilitating coping with the almost inevitable moral distress and psychological pressures associated with working in intensive care.

Acknowledgments

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Ethics approval

This study involves human participants but an Ethics Committee(s) or Institutional Board(s) exempted this study. Approvals gained from the NHS Health Research Authority (IRAS:238379). University Hospitals Coventry and Warwickshire NHS Trust acted as study sponsor. Local approvals from each study site Research & Development department.

Contribution statement

Study design: AJB, JY, AMS, CB. Study conduct: AJB, JY, AMS, CB. Data analysis: AJB, AMS. Drafting of manuscript: AJB, AMS. Review of manuscript: AJB, JY, AMS, CB.

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Competing interest

AJB is supported by an NIHR funded Academic Clinical Fellowship.

Data sharing statement

Statistical code for analyses used R version 3.6.1 (R Foundation for Statistical Computing) are available on reasonable request.

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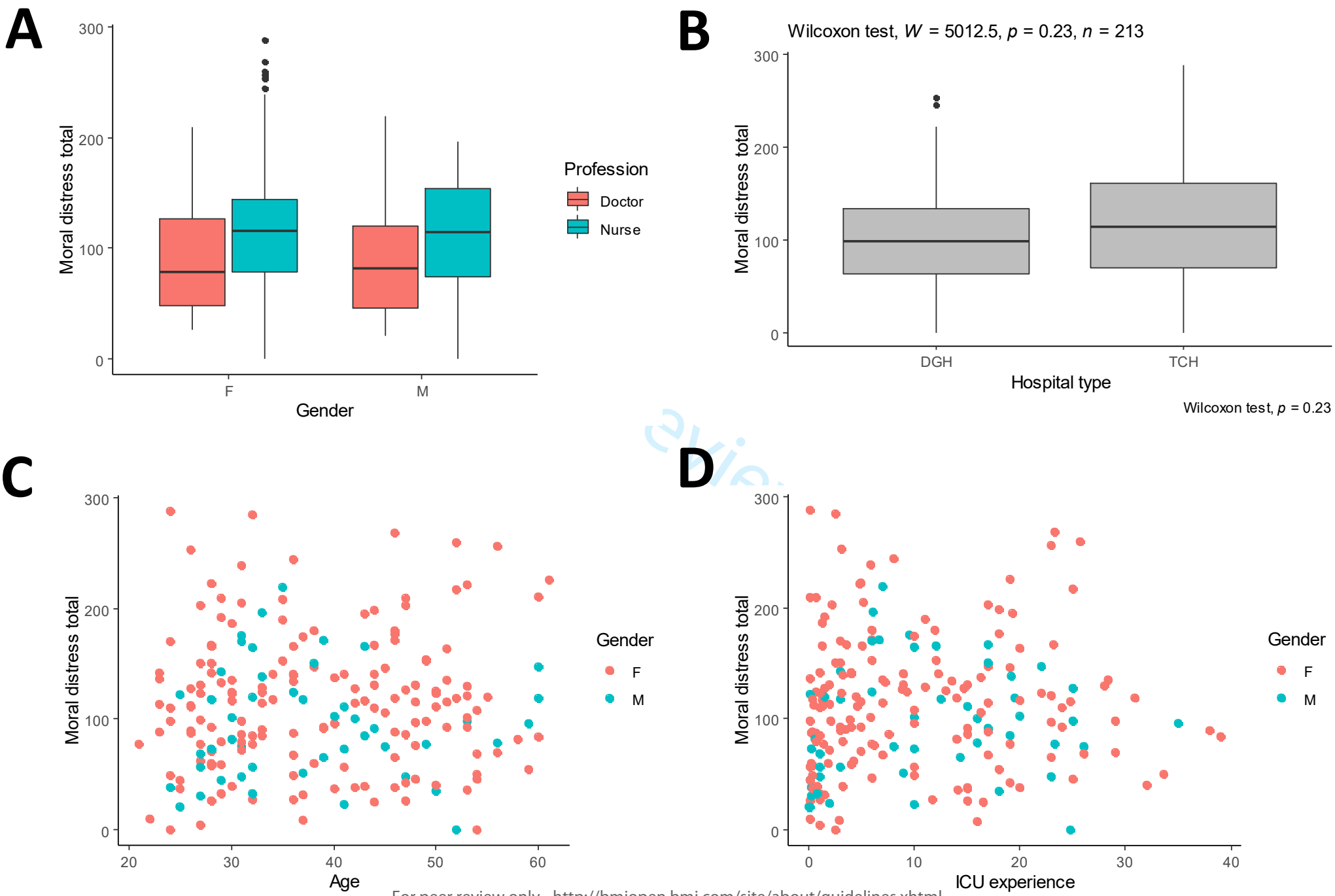
Figures

Figure 1 Relationship between moral distress total and demographic/professional variables. F=Female, M=Male, DGH=District General Hospital, TCH=Tertiary Care Hospital. N=213 as 14 questionnaires excluded due to missing responses preventing calculation of the moral distress score



ID: Demographics

Moral distress amongst intensive care unit professions in the UK

Moral distress happens when we *cannot do* what we believe is the *ethically right thing* to do because of barriers or constraints.

Work in North America tells us this is a widespread experience and is damaging to healthcare professionals. However, this is poorly studied in the UK and we are interested your experiences.

Profession (please circle): Doctor / Nurse / ACCP / Physiotherapist / Other (please specify).....

Place of work (please circle): BHH / GHH / QEHB / UHCW / Other (please specify) .....

Age: Gender: Grade:

Years of working experience:

Experience in ICU (years and months):

Many thanks for your interest in taking part in this study. Your responses are anonymous.

Please complete the questionnaire overleaf as accurately as possible.

This research is funded by the National Institute of Academic Anaesthesia (NIAA), supported by the NHS National Institute for Health Research (NIHR), and conducted by researchers at the University of Warwick.

<u>This research is independent of your hospital trust</u>

NIAA National Institute of Academic Anaesthesia

SUPPORTED BY NIHR | National Institute for Health Research

WARWICK THE UNIVERSITY OF WARWICK

ID:

Demographics

We are inviting participants to undertake a semi-structured interview to further investigate moral distress. This will take approximately 30 minutes. We are interested in your direct experiences of moral distress.

We will do this at a time that is convenient for the participant. If you are willing to take part, please leave your contact details below and we will contact you to arrange a convenient time and place.

Name:

Email:

Mobile number:

ID:

Measure of Moral Distress – Healthcare Professionals (MMD-HP)

Moral distress occurs when professionals cannot carry out what they believe to be ethically appropriate actions because of constraints or barriers. This survey lists situations that occur in clinical practice. If you have experienced these situations they may or may not have been morally distressing to you. Please indicate how frequently you have experienced each item. Also, rank how distressing these situations are for you. If you have never experienced a particular situation, select "0" (never) for frequency. Even if you have not experienced a situation, please indicate how distressed you would be if it occurred in your practice. Note that you will respond to each item by checking the appropriate column for two dimensions with a ●: *Frequency and Level of Distress*.

	Frequency					**Level of Distress**				
	Never				Very frequently	None				Very distressing
	0	1	2	3	4	0	1	2	3	4
Example entry: *Witness healthcare providers giving "false hope" to a patient or family.*			●						●	
1. Witness healthcare providers giving "false hope" to a patient or family.										
2. Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient.										
3. Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments.										
4. Be unable to provide optimal care due to pressures from administrators or insurers to reduce costs.										
5. Continue to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it.										
6. Be pressured to avoid taking action when I learn that a physician, nurse, or other team colleague has made a medical error and does not report it.										
7. Be required to care for patients whom I do not feel qualified to care for.										
8. Participate in care that causes unnecessary suffering or does not adequately relieve pain or symptoms.										
9. Watch patient care suffer because of a lack of provider continuity.										
10. Follow a physician's or family member's request not to discuss the patient's prognosis with the patient/family.										
11. Witness a violation of a standard of practice or a code of ethics and not feel sufficiently supported to report the violation.										
12. Participate in care that I do not agree with, but do so because of fears of litigation.										
13. Be required to work with other healthcare team members who are not as competent as patient care requires.										
14. Witness low quality of patient care due to poor team communication.										
15. Feel pressured to ignore situations in which patients have not been given adequate information to ensure informed consent.										

ID:

	Frequency					Level of Distress				
	Never				Very frequently	None				Very distressing
	0	1	2	3	4	0	1	2	3	4
16. Be required to care for more patients than I can safely care for.										
17. Experience compromised patient care due to lack of resources/equipment/bed capacity.										
18. Experience lack of administrative action or support for a problem that is compromising patient care.										
19. Have excessive documentation requirements that compromise patient care.										
20. Fear retribution if I speak up.										
21. Feel unsafe/bullied amongst my own colleagues.										
22. Be required to work with abusive patients/family members who are compromising quality of care.										
23. Feel required to overemphasize tasks and productivity or quality measures at the expense of patient care.										
24. Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care.										
25. Work within power hierarchies in teams, units, and my institution that compromise patient care.										
26. Participate on a team that gives inconsistent messages to a patient/family.										
27. Work with team members who do not treat vulnerable or stigmatized patients with dignity and respect.										
If there are other situations in which you have felt moral distress, please write and score them here:										

Have you ever left or considered leaving a clinical position due to moral distress?

- ☐ No, I have never considered leaving or left a position.
- ☐ Yes, I considered leaving but did not leave.
- ☐ Yes, I left a position.

Are you considering leaving your position now?

- ☐ Yes
- ☐ No

Interview guide

Introduction:

Introduce self and project.

Confirm confidentiality. Confirm that individual comments will not be discussed with employers and seniors. The research team is independent of the hospital management and working with a Health Research Authority framework and the data is secure.

Advise there are no right or wrong answers and we are interested in their experiences and views and would like them to be as honest as possible.

I may make the occasional note during the interview.

Ensure written informed consent. Advice of audio-recording Could you just confirm that you are happy to be audio-recorded.

Please describe your role and professional background: Age, clinical speciality, professional role, years in current role, years of work.

Beginning questions:

Do you experience ethical dilemmas or issues at work?

What kind of things make you feel uncomfortable at work?

Can you give me a specific example?

How did it make you feel?

What did you do?

What kind of things do you find challenging or upsetting at work?

Can you give me a specific example?

How did it make you feel?

What did you do?

What sort of work issues preoccupy you after work?

Can you give me a specific example?

How did it make you feel?

What did you do?

Have you had a situation where you felt that your personal beliefs were in conflict with what a patient wanted? With what the team wanted? What the patient's consultant wanted?

Can you give me a specific example?

How did it make you feel?

What did you do?

Interview guide

Have you ever felt like you have had to give treatment that you did not agree with?

Can you give me a specific example?

How did it make you feel?

What did you do?

When you experience these kinds of situations, how do you cope?

Do you discuss them with anyone?

Do you have any support networks for discussing this kind of thing?

What do you think could be done to support doctors/nurses facing these situations?

Probes:

Can you provide a bit more background, such as why the patient was in hospital?

Can you describe how this made you feel?

What were your thoughts and feelings during this?

What were your thoughts and feelings after this?

Can you describe the ethical issues?

Can you provide an example?

Do you seek any support? Did the support help?

What support or help do you think could help?

Can you tell me a bit more about that?

How did you feel about that?

What was helpful?

Supplementary Table 1 Interview participant demographics

Characteristic	**N=15**
Mean age ±SD – years	40.6±9.1
Gender – no. (%)	
Female	9 (60.0%)
Male	5 (40.0%)
Profession – no. (%)	
Nurse	6 (40.0%)
Band 5	2
Band 7	3
Band 8	1
Doctor	5 (33.3%)
Core trainee level	2
Specialty trainee level	2
Consultant	1
Advanced Critical Care Practitioner (ACCP)	2 (13.3%)
Other	2 (13.3%)
Mean ICU experience ±SD – years	11.1±9.2
Workplace – no. (%)	
Site A	4 (26.7%)
Site B	5 (33.3%)
Site C	6 (40.0%) (3 (20.0%) work at Site D also)

Supplementary Table 2 Moral distress items ranked by composite moral distress score for nurses and doctors. *indicates mean composite score greater for doctors than nurses.

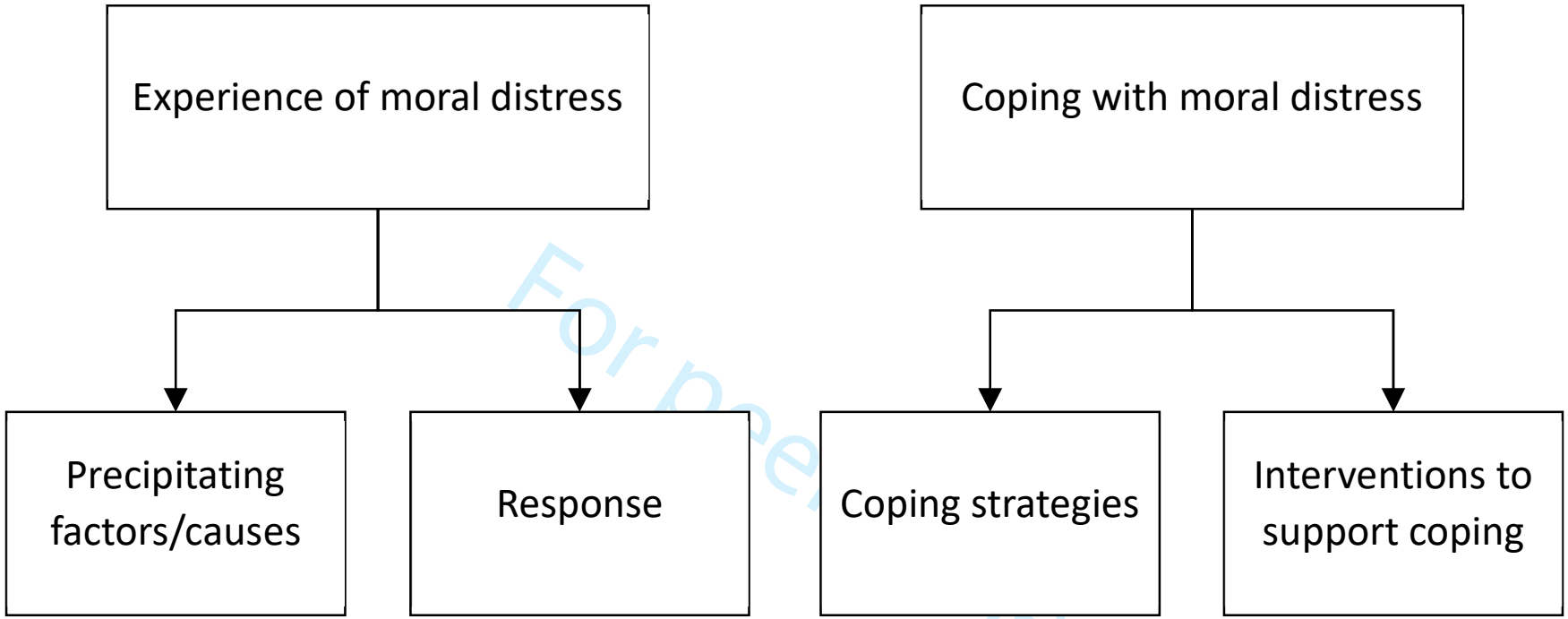
Situation	Nurses		Doctors	
	Mean (SD)	Rank	Mean (SD)	Rank
Continue to provide aggressive treatment for a person who is most likely to die regardless of this treatment when no one will make a decision to withdraw it.	9.24 (4.62)	1	5.98 (3.38)	4
Experience compromised patient care due to lack of resources/equipment/bed capacity.	8.1 (5.15)	2	7.29 (5.25)	2
Have excessive documentation requirements that compromise patient care.	7.51 (5.46)	3	3.92 (3.99)	8
Follow the family's insistence to continue aggressive treatment even though I believe it is not in the best interest of the patient.	7.45 (4.24)	4	7.45 (4.40)	1
Be required to work with abusive patients/family members who are compromising quality of care.	6.82 (4.82)	5	4.03 (3.93)	7
Be required to care for more patients than I can safely care for.	6.60 (4.95)	6	6.02 (5.30)	3
Be required to work with other healthcare team members who are not as competent as patient care requires.	6.25 (4.87)	7	3.02 (3.57)	15
Witness healthcare providers giving "false hope" to a patient or family.	5.62 (4.05)	8	4.82 (3.73)	6
Be required to care for patients who have unclear or inconsistent treatment plans or who lack goals of care.	5.57 (4.71)	9	3.75 (3.37)	10
Feel pressured to order or carry out orders for what I consider to be unnecessary or inappropriate tests and treatments.	5.31 (4.17)	10	3.88 (3.25)	9
*Experience lack of administrative action or support for a problem that is compromising patient care.	4.89 (4.53)	11	5.10 (5.33)	5
Witness low quality of patient care due to poor team communication.	4.79 (4.11)	12	3.30 (2.72)	14
Watch patient care suffer because of a lack of provider continuity.	4.57 (4.62)	13	3.37 (3.30)	13
Participate on a team that gives inconsistent messages to a patient/family.	3.84 (3.86)	14	2.10 (2.45)	19
Fear retribution if I speak up.	3.72 (4.74)	15	2.20 (3.74)	17

Be unable to provide optimal care due to pressures from administrators to reduce costs.	3.65 (4.96)	16	2.38 (4.07)	16
*Participate in care that causes unnecessary suffering or does not adequately relieve pain or symptoms.	3.57 (3.64)	17	3.62 (3.06)	11
Feel required to overemphasize tasks and productivity or quality measures at the expense of patient care.	3.36 (4.16)	18	1.82 (2.68)	20
Work within power hierarchies in teams, units, and my institution that compromise patient care.	2.98 (4.12)	19	1.80 (3.11)	21
Follow a physician's or family member's request not to discuss the patient's prognosis with the patient/family.	2.97 (2.93)	20	1.45 (2.02)	23
*Participate in care that I do not agree with, but do so because of fears of litigation.	2.76 (3.55)	21	3.50 (4.35)	12
Feel unsafe/bullied amongst my own colleagues.	2.27 (4.16)	22	0.825 (1.63)	27
Feel pressured to ignore situations in which patients have not been given adequate information to ensure informed consent.	2.12 (3.56)	23	1.75 (2.72)	22
*Be required to care for patients whom I do not feel qualified to care for.	2.00 (2.94)	24	2.17 (2.60)	18
Work with team members who do not treat vulnerable or stigmatized patients with dignity and respect.	1.96 (3.03)	25	0.925 (1.85)	26
Witness a violation of a standard of practice or a code of ethics and not feel sufficiently supported to report the violation.	1.25 (2.41)	26	1.08 (2.22)	24
Be pressured to avoid taking action when I learn that a physician, nurse, or other team colleague has made a medical error and does not report it.	1.10 (1.74)	27	1.00 (1.87)	25

Supplementary Table 3 Logistic regression model variables and association with the ordinal dependent variable of intention to leave previous post due to moral distress (No, Considered but didn't leave, Left) in univariable and multiple analyses. Italics and * indicate statistically significant association. (OR=Odds Ratio, CI=Confidence Interval)

Variable	**Univariable OR (95% CI)**	***p*-value**	**Multivariable OR (95% CI)**	***p*-value**
Age (per year)	1.021 (0.994 – 1.049)	0.128	1.040 (0.992 – 1.093)	0.106
ICU experience (per year)	1.018 (0.989 – 1.049)	0.226	0.965 (0.914 – 1.019)	0.201
Gender				
Male	Ref	Ref	Ref	Ref
Female	*1.914 (1.025 – 3.629)*	*0.0436**	1.188 (0.554 – 2.560)	0.659
Profession				
Other	Ref	Ref	Ref	Ref
Nurse	*1.845 (1.017 – 3.386)*	*0.0455**	1.460 (0.705 – 3.059)	0.310
Hospital type				
District general	Ref	Ref	Ref	Ref
Tertiary care	1.707 (1.002 – 2.929)	0.0504	1.738 (0.937 – 3.249)	0.0805
Moral distress total (per unit)	*1.010 (1.006 – 1.015)*	*0.0000113**	*1.009 (1.004 – 1.014)*	*0.00122**

Supplementary Figure 1 Qualitative analysis content area flowchart.



Supplementary Figure 2 Multivariable logistic regression model prediction of intention to leave current post due to moral distress.